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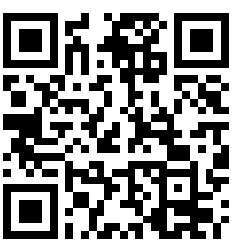

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MIDDLE EAST

The Official Story of Air Operations in the Middle East, from February 1942 to January 1943.

LONDON: HIS MAJESTY'S STATIONERY OFFICE

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SIDI BARRANI: R.A.F. GROUND CREWS

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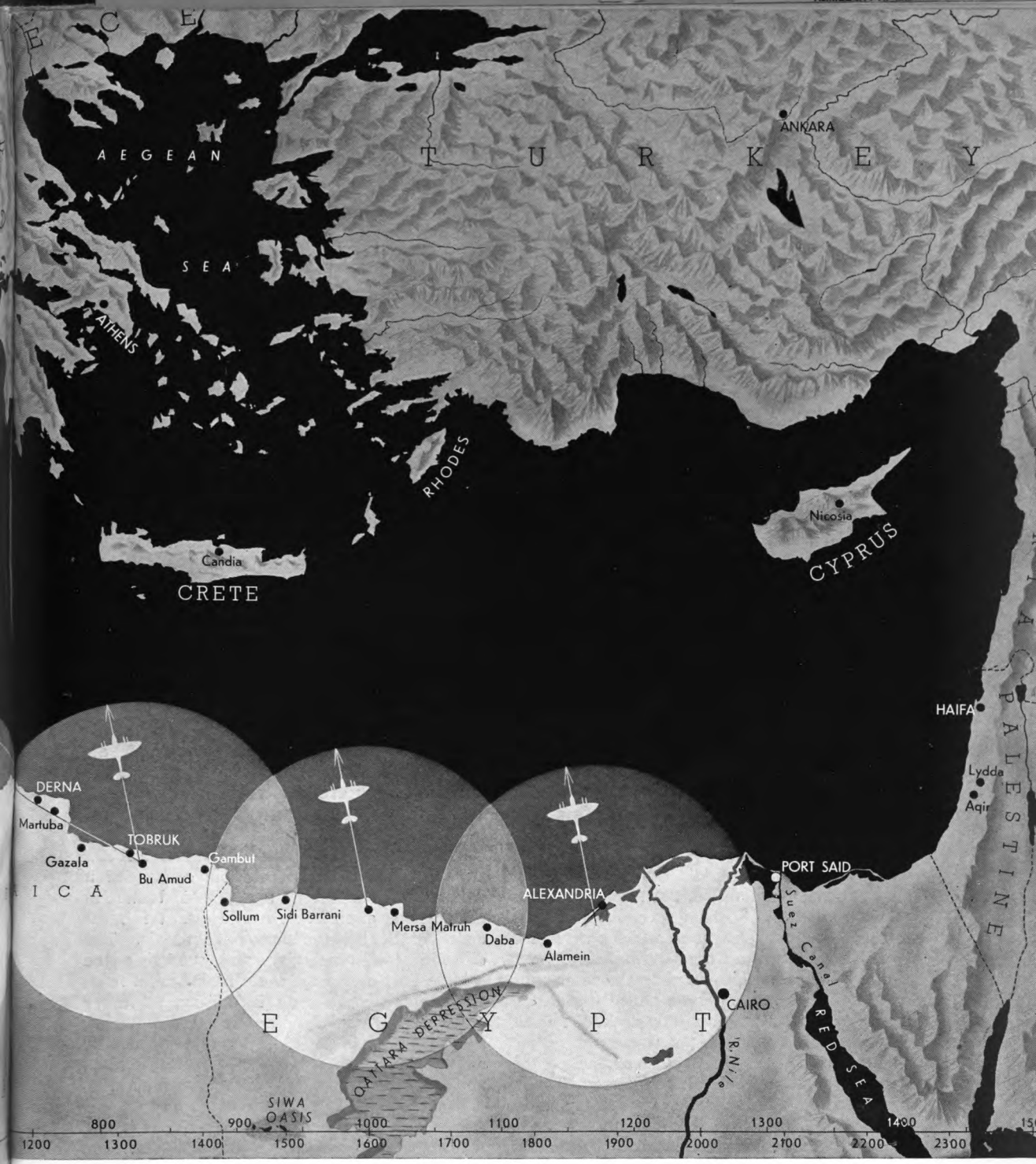

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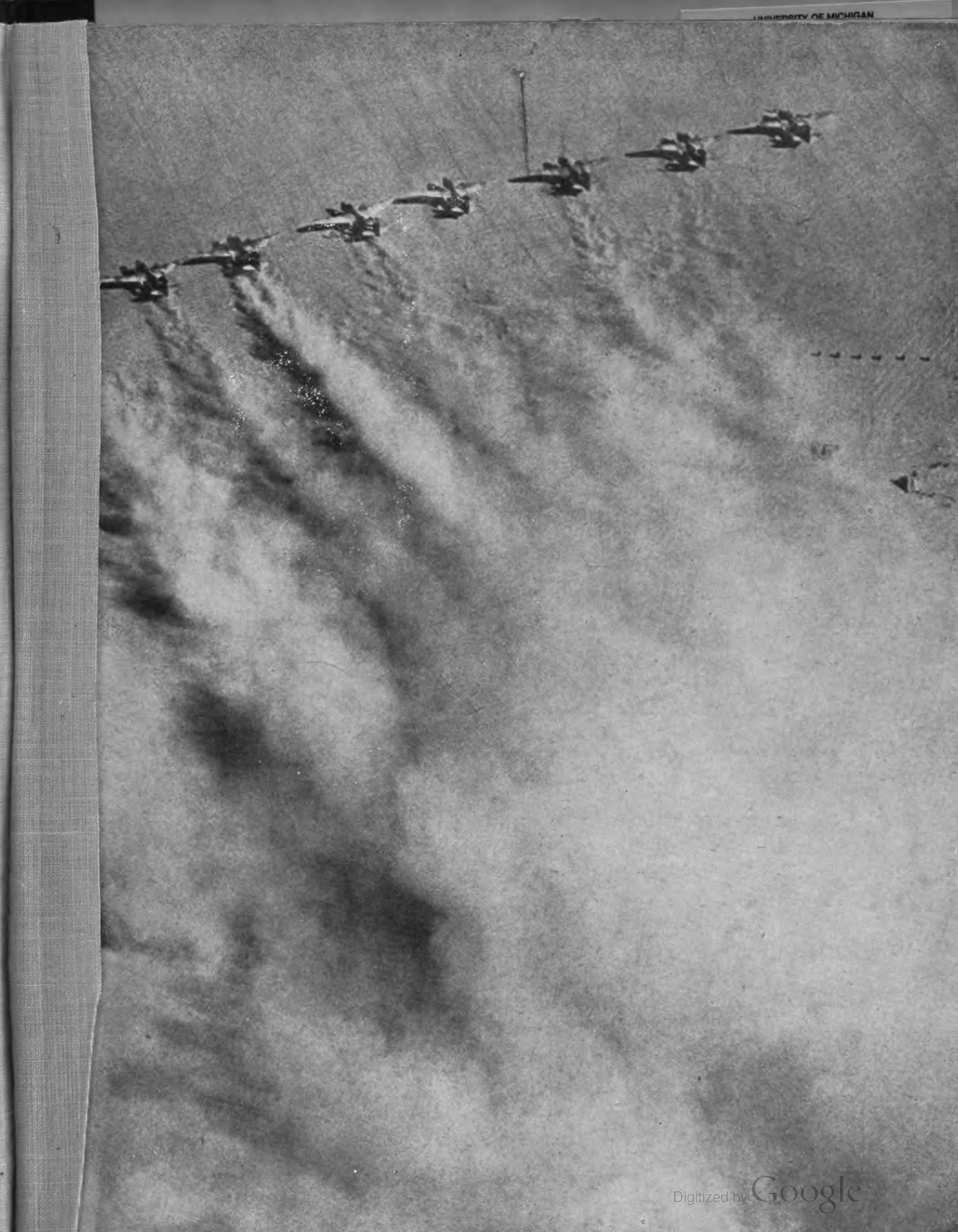

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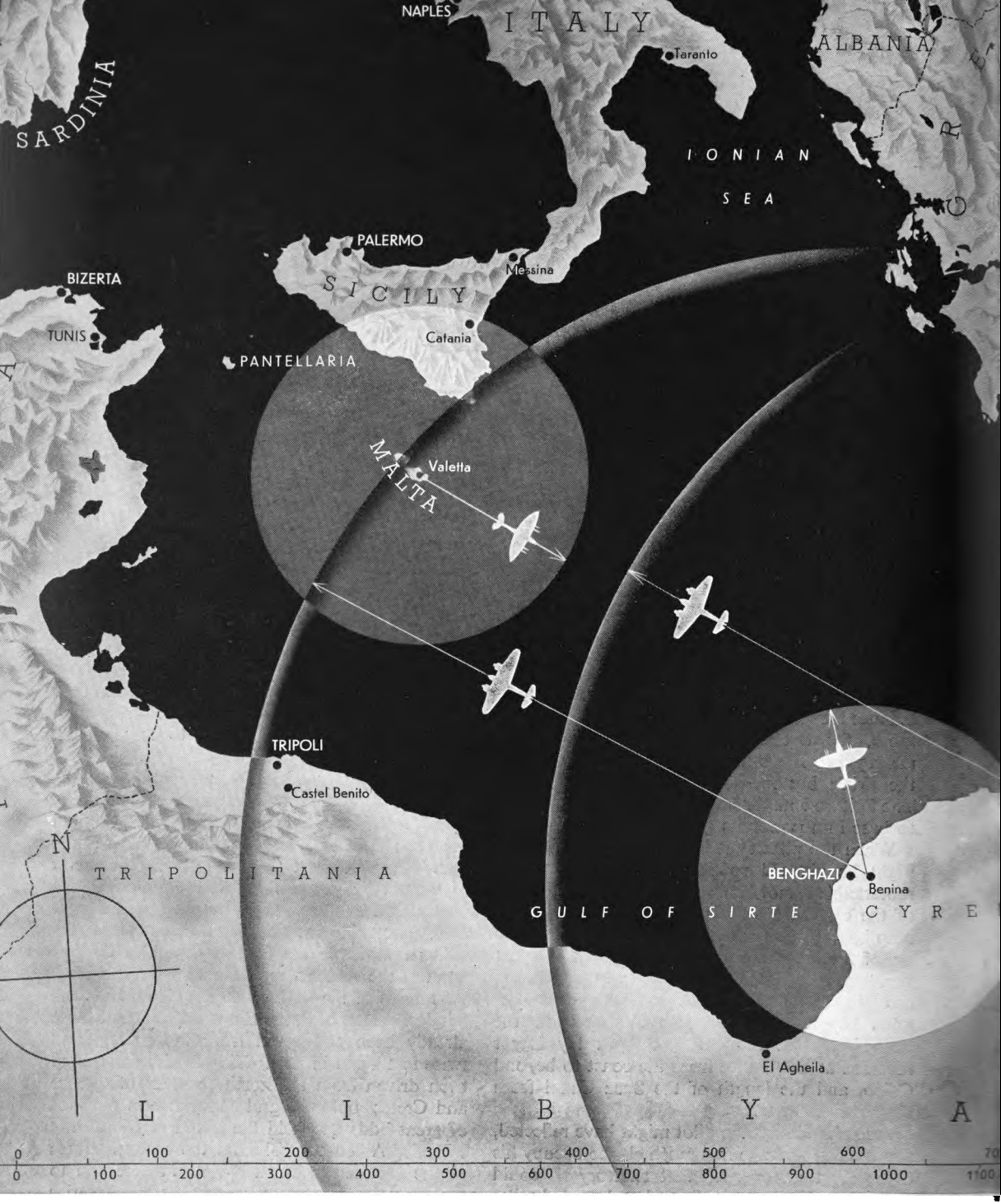

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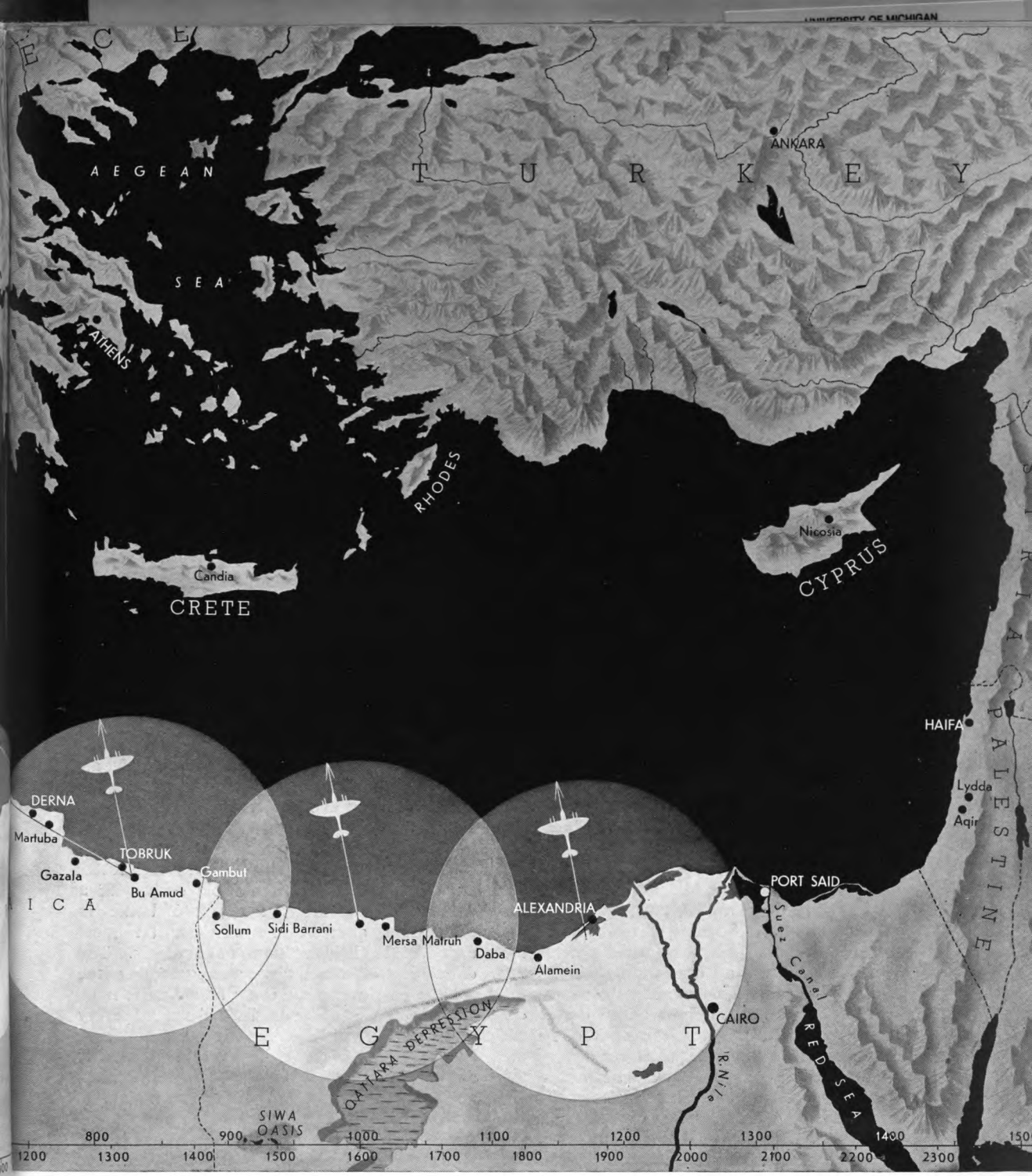

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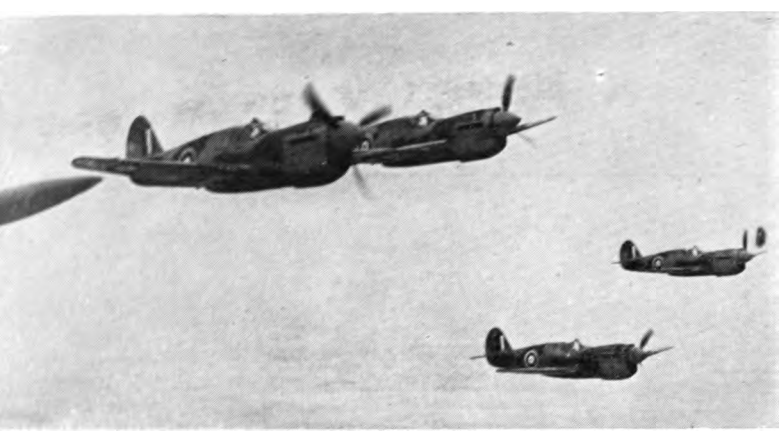

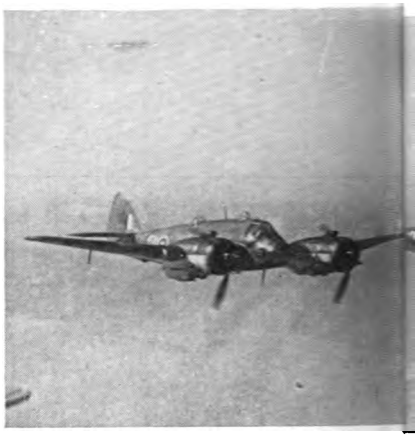

The strong limbs of Air Power. *The Desert Force*, of fighters and light bombers, warded off watched over our shipping and struck at sea. The centre picture shows Beaufighters. *The Bomber Force*

other in East Africa and Abyssinia where the Emperor had been reinstated. By hard fighting a place had been kept in the battle of the Mediterranean, and control of the Red Sea had been wholly established.

The air above all this territory, ranging between the extremes of temperature and weather, ice to coat an instrument panel, sun heat to blister a bare hand, dust storms to blot out land and sky, electric storms to dance in blue fire on wing-tips, had been, and continued to be, the battle-field of the Middle East Command of the Royal Air Force. This Command has existed almost as long as the military use of aircraft. Head-quarters, R.A.F., Middle East, were set up in Cairo in 1915 to control the air war over the Mediterranean and Red Seas, and the countries of their shores. When peace came after the first world war, R.A.F., Middle East, remained, its area of control diminished, but still a permanent garrison of the air. So that it was something more than the tradition of a name which entered the present war; it was a Command in being.

Into this organisation and under this name units of other air forces had been added during the course of the war. When Italy declared herself against us, the bulk of the squadrons of the Middle East were, and have remained, those of the R.A.F. manned from the British Isles. Even in those early days, however, they were strengthened by squadrons of the Royal Australian Air Force, the South African Air Force and a noted squadron from Southern Rhodesia; men of the Royal Canadian Air Force and of the Royal New Zealand and Royal Australian Air Forces were posted in large numbers to the British squadrons, and later came complete Canadian squadrons; as the war progressed they were to receive squadrons of the Fighting French Air Force, the Royal Hellenic Air Force and the Royal Yugoslav Air Force; it was not long before men of the air forces of most of the United Nations were numerous comrades in their tents. Later whole formations of the United States Army Air Force flew in to work beside them. The old name remained—R.A.F., Middle East—but it must always be read in the sense of a powerful air force of the United Nations, an international air force, working as an harmonious team under the operational control of the R.A.F.

It had not always been powerful. In June, 1940, the Air Officer Commanding-in-Chief, Air Chief Marshal Sir Arthur Longmore, K.C.B., D.S.O., faced almost impossible odds with a handful of squadrons flying into battle in obsolescent aircraft; nevertheless, on most occasions they held the enemy out of the air. The difficulties of reinforcing and supplying the Middle East over a sea route 14,000 miles long, at a time when Britain herself needed every aircraft that would fly, do not require emphasis. By the spring of 1942, however, a formidable air weapon had been built in the Middle East, and had been trained to a theory and a plan.

It must be made clear for what purpose this power was created, what was the object of the whole war in the Middle East, what was to be gained by victory or lost in defeat.

The first prize of the war was a shipping route, running from Gibraltar through the Mediter-

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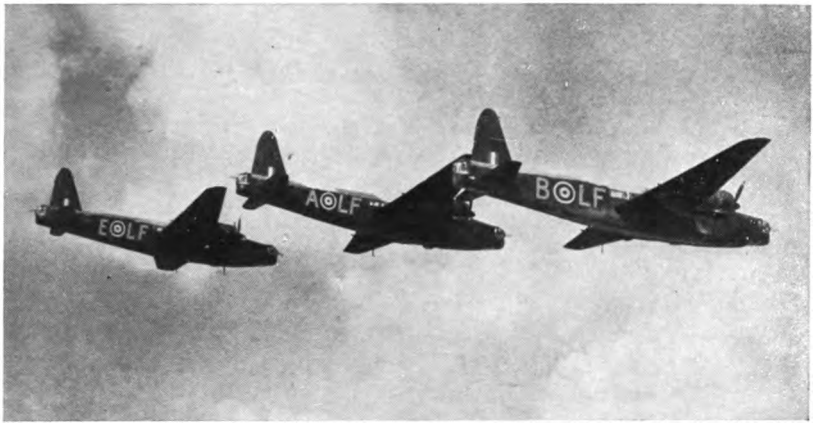

the enemy and kept his head down. On the left are Kittyhawks. *The Coastal Force* reconnoitred, attacked the enemy's supply ports and bases. On the right are Wellingtons, long-range night-bombers.

ranean Sea and the Suez Canal, out through the Red Sea into the Indian Ocean. This route has often been called the lifeline of the British Commonwealth of Nations. The Italian declaration of war in itself virtually denied that route to Britain, not by merit of the Italian Fleet, but because the Mediterranean is a sufficiently narrow sea to be controlled throughout its length by aircraft based on its shores. Whoever stocked the shore airfields with bombers and fighters could pass his own ships through the sea with reasonable safety, and destroy most of the enemy ships that attempted the same route.

By how much would it benefit the Allied war strength as a whole if the Suez Canal route could be reopened to its shipping? By this much. The supply ships and warships destined for the Middle or the Far East, no longer compelled to make the weary journey round the Cape of Good Hope, would save so much time that for the same result only a small proportion of their numbers would be needed. The rest would be available for use in the war elsewhere. It would be the equivalent of presenting the Allies with vast new war and merchant navies. It would be as if all the shipyards of Britain and America produced double their maximum number of new ships for a period of months; or as if all the ships sunk by the U-boat packs for many months were miraculously restored to the surface ready for use again anywhere in the world. It would mean the swifter disposal of stronger Allied armies at any theatre in the global war.

That happy result could be gained only by securing air control of at least the southern and eastern shores and waters of the Mediterranean and by erasing enemy air power in East Africa. In securing that air control, there was always one limiting factor, the distance that an aircraft can fly before it must alight to refuel its petrol tanks. As long as our main air force was based in Egypt, for instance, there were wide stretches of the Mediterranean over which we could exercise no air control at all, simply because our aircraft, particularly our fighters, could not reach them. Directly the airfields of Libya were captured, important stretches of the Mediterranean were at once covered by our air umbrella and became safe for our shipping. To give a practical instance, every time our fighters could use the airfield at Benina just outside Benghazi, we could sail shipping convoys successfully and in reasonable safety to Malta; whenever the enemy held that airfield, ships ran to Malta if at all, only at great peril and with terrible losses.

The first aim was to possess so many airfields that the whole length of the Mediterranean could be controlled and the lifeline shipping route reopened. That is what the Middle East war was about during the period covered by this account; that is why it was a battle for airfields. Infantrymen scaling the rock peaks of Abyssinia, tank crews battling across the Libyan desert, submarine commanders sighting their periscopes off the coast of Italy, observers adjusting bomb sights over Benghazi harbour, gunners on the wharves of besieged Malta, fighter pilots scrambling into the desert air, all these alike and thousands more fought in the same battle, the battle for airfields. All three Services of sea,

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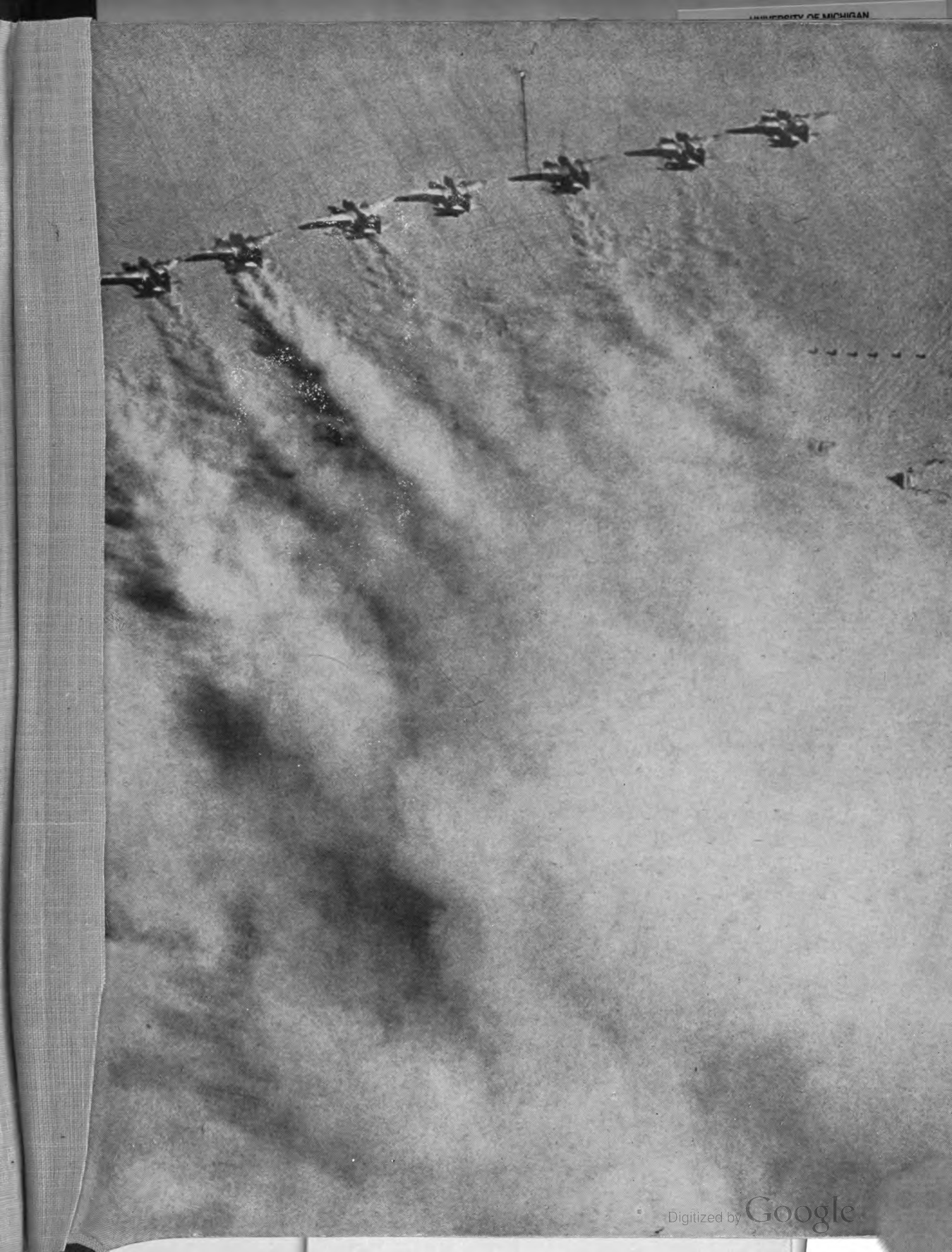

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THERE ARE MANY MEN AND WOMEN IN THE FORCES WHO WOULD WELCOME A CHANCE OF

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R.A.F. GROUND CREWS: TRIPO

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With 133 Photographs in half-tone

PREPARED FOR THE AIR MINISTRY BY THE MINISTRY OF INFORMATION

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I. PATTERN OF AIR POWER

1—Something New in the Middle East

ABOVE 35,000 feet without a pressure cabin a man struggles to remain conscious even with the help of oxygen. He can suffer not only from intense cold but also from temporary paralysis of the limbs, expanding gases which distend the intestines, and sometimes from "the bends," an affliction which deep-sea divers can also know, in which all the joints of the body are gripped in a pain said to be more intense than any other. Great height also has a temporary effect on a man's mind, plunging him into despondency against his will.

On August 24th, 1942, Flying Officer G.W.H. Reynolds, D.F.C., flying a Spitfire which had been modified and stripped of most things save its guns, sighted a Ju.86 reconnaissance aircraft with two men sitting securely in a pressure cabin in the nose, just north of Cairo. He pursued it towards Alexandria and then out to sea at an ever-increasing height. At 37,000 feet he almost reached it and began to zig-zag back and forth just below in order not to overshoot. The Ju.86 zig-zagged in the same way, trying to stay just above the Spitfire and force it to lose a little height on each turn. The long, slow duel in the rarefied atmosphere proceeded in this manner until Reynolds was at a height of 40,000 feet. He realised that he could not get any higher until he had used some more petrol to lighten his aircraft. He started to calculate how much petrol he could use and how far out to sea he could go before he would be forced to turn back in order to reach home safely, for he had abandoned his Mae West life-saving jacket and his dinghy to save weight, keeping only a parachute. In the middle of these calculations he temporarily blacked out, having just sufficient time to turn his oxygen tap to "full emergency" to bring himself round again. He then slowly forced the Spitfire higher still. At 42,000 feet he was practically level with the Ju.86, slowly closing. At a range of 50 yards he opened fire. Flame and grey smoke whipped backwards from the starboard engine of the enemy, which banked sharply to the left. Reynolds had intended to follow but his Spitfire began not to function properly and he fell nearly 10,000 feet very quickly. The pilot's own physical endurance was practically exhausted.

"I had been experiencing great pain at that height," he said, "as I was over 40,000 feet for nearly half an hour and felt rather ill. Added to this, my petrol and oxygen were low and I wished to get home as quickly as possible. I landed at base with five gallons of petrol left."

He did not know when he landed whether or not he had destroyed the Ju.86, but its loss was afterwards confirmed. The first stratosphere reconnaissance aircraft had been shot down.

The destruction of this Ju.86 was the first success in a struggle between the German stratosphere reconnaissance of Egypt—the only daylight activity over that country that the Luftwaffe usually dared attempt—and a small group of test pilots and engineers of the R.A.F. who maintained that these high-flying Germans, inaccessible to any other weapon, could be reached and destroyed by a modified Spitfire even in the hot skies of that part of the world.

The pilots who undertook this task were not young men. Reynolds, who destroyed the first Ju.86, was a man approaching 40 years of age, yet he flew above 40,000 feet some 25 times within a month. His first success came only after much trial and endurance, but the three other Ju.86 aircraft which the Germans possessed for this work of reconnaissance were soon to be destroyed as the first had been.

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R.A.F. Middle East creates a new kind of air power, trained in co-operation with land and sea forces, flexible for attack or defence, designed to control the air over North Africa and the Mediterranean.

The enemy came, however, at always greater and greater heights; the last one was pursued to nearly 50,000 feet. This fell also to Reynolds, who had been for more than an hour higher than 45,000 feet. His whole cockpit, instrument panel, control column, perspex, were coated thickly with ice. His body was wrenched with pain, his arms were temporarily paralysed and his eyesight for the moment almost failed with weakness. When he met the Ju.86 at a distance of only 100 yards but at a height of 50,000 feet, he was physically incapable of firing his guns; the enemy turned and fled towards the sea. Reynolds manœuvred his Spitfire to follow it by moving the position of his body in the delicately-balanced aircraft. He caught the Junkers once more, far out over the Mediterranean, and managed to move his hands sufficiently to press the firing button. The Ju.86 was destroyed. The Spitfire completed much of the journey back to base in a powerless glide.

When the pilot started to glide home on that flight he glanced round and below him at a remarkable panorama. He could see the whole of the eastern Mediterranean spread out like a map beneath him. To the west, in the fine clear air of this part of the world, he could see past Benghazi into the Gulf of Sirte; to the east, the coastline of Palestine and Syria with the mountains beyond. Behind him lay unrolled the island-sprinkled Ægean. In front lay Egypt revealed at one glance from the coast to beyond Cairo, and the length of the Suez Canal from Port Said to Suez.

At that moment the pilot might have reflected, though doubtless he had much else to occupy his thoughts, that, over all that territory he could survey and indeed for many hundreds of miles beyond even so remarkable a vision, the Service of which he was a member had established by the spring of 1942 a true air power. It was organised to fight in equal partnership with the naval forces on the sea beneath him and with the army on the land ahead. But chiefly it had learnt to seize command in the third dimension of all that body of air which drifted around and beneath him, the air of the Mediterranean and the Middle East, never more comprehensively surveyed than by him at that moment. That was the intangible territory which the R.A.F. and its allied squadrons were then prepared to occupy and hold against all disputants. Its boundaries were limited only by the amount of petrol in an aircraft's tanks. From within those boundaries the squadrons were preparing to strike at the enemy in air, on land, on sea and beneath the sea. The test was to come in the late spring of 1942.

Since the entry of Italy on June 10th, 1940, there had been continual war in that area of the world, roughly one-third larger than the United States of America, which is called "the Middle East"—a military territory, not that formerly so named by geographers and diplomats. Its operational boundaries had indeed varied a great deal, stretching at different times from the western wadis of the Libyan desert to the left hand of the Red Army in Persia, from the snow mountains of the Balkans to the Central African jungles. Some of it, the Libyan desert, had twice already been conquered from the enemy, and twice lost again in part. Tiny British forces had been driven from the northern areas of Greece and Crete; boldness and endurance in the face of great odds had held the island of Malta and extended Allied control from the eastern shores of the Mediterranean at Syria and Palestine to the great expanse of Iraq and Persia. A series of seeming miracles had wiped out one large Italian Air Force and Army in Cyrenaica, an-

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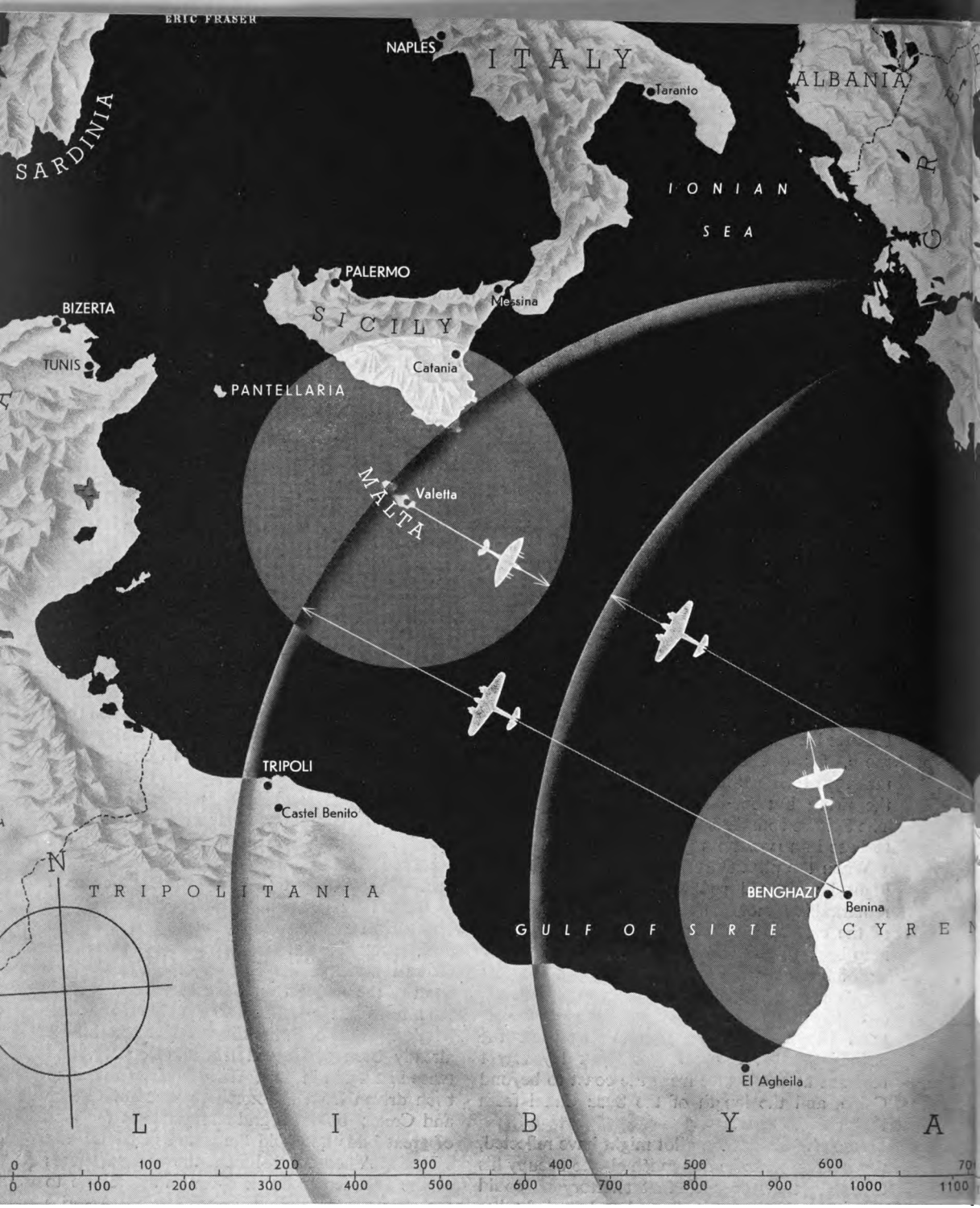

The war in the Middle East was a struggle for airfields. So long as our main air force was based in Egypt ... shipping convoys successfully and in reasonable safety to Malta. (Aircraft ranges vary widely with conditions;...

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wide stretches of the Mediterranean were beyond our fighter control; with fighters at Benina, we could sail the circles represent rough operational limits for the single-engined fighters and the Beaufighters during this period.)

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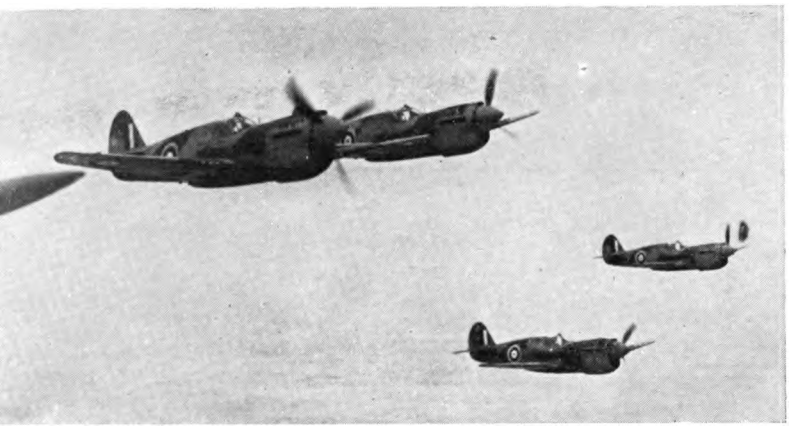

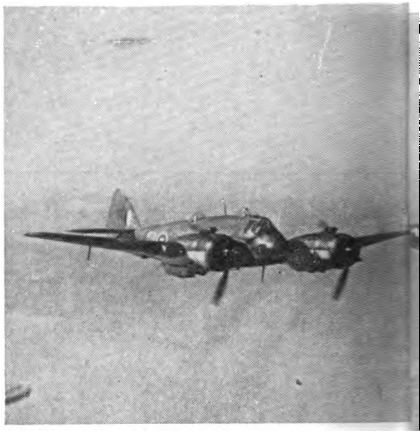

The strong limbs of Air Power. *The Desert Force*, of fighters and light bombers, warded off watched over our shipping and struck at sea. The centre picture shows Beaufighters. *The Bomber Force*

other in East Africa and Abyssinia where the Emperor had been reinstated. By hard fighting a place had been kept in the battle of the Mediterranean, and control of the Red Sea had been wholly established.

The air above all this territory, ranging between the extremes of temperature and weather, ice to coat an instrument panel, sun heat to blister a bare hand, dust storms to blot out land and sky, electric storms to dance in blue fire on wing-tips, had been, and continued to be, the battle-field of the Middle East Command of the Royal Air Force. This Command has existed almost as long as the military use of aircraft. Head-quarters, R.A.F., Middle East, were set up in Cairo in 1915 to control the air war over the Mediterranean and Red Seas, and the countries of their shores. When peace came after the first world war, R.A.F., Middle East, remained, its area of control diminished, but still a permanent garrison of the air. So that it was something more than the tradition of a name which entered the present war; it was a Command in being.

Into this organisation and under this name units of other air forces had been added during the course of the war. When Italy declared herself against us, the bulk of the squadrons of the Middle East were, and have remained, those of the R.A.F. manned from the British Isles. Even in those early days, however, they were strengthened by squadrons of the Royal Australian Air Force, the South African Air Force and a noted squadron from Southern Rhodesia; men of the Royal Canadian Air Force and of the Royal New Zealand and Royal Australian Air Forces were posted in large numbers to the British squadrons, and later came complete Canadian squadrons; as the war progressed they were to receive squadrons of the Fighting French Air Force, the Royal Hellenic Air Force and the Royal Yugoslav Air Force; it was not long before men of the air forces of most of the United Nations were numerous comrades in their tents. Later whole formations of the United States Army Air Force flew in to work beside them. The old name remained—R.A.F., Middle East—but it must always be read in the sense of a powerful air force of the United Nations, an international air force, working as an harmonious team under the operational control of the R.A.F.

It had not always been powerful. In June, 1940, the Air Officer Commanding-in-Chief, Air Chief Marshal Sir Arthur Longmore, K.C.B., D.S.O., faced almost impossible odds with a handful of squadrons flying into battle in obsolescent aircraft; nevertheless, on most occasions they held the enemy out of the air. The difficulties of reinforcing and supplying the Middle East over a sea route 14,000 miles long, at a time when Britain herself needed every aircraft that would fly, do not require emphasis. By the spring of 1942, however, a formidable air weapon had been built in the Middle East, and had been trained to a theory and a plan.

It must be made clear for what purpose this power was created, what was the object of the whole war in the Middle East, what was to be gained by victory or lost in defeat.

The first prize of the war was a shipping route, running from Gibraltar through the Mediter-

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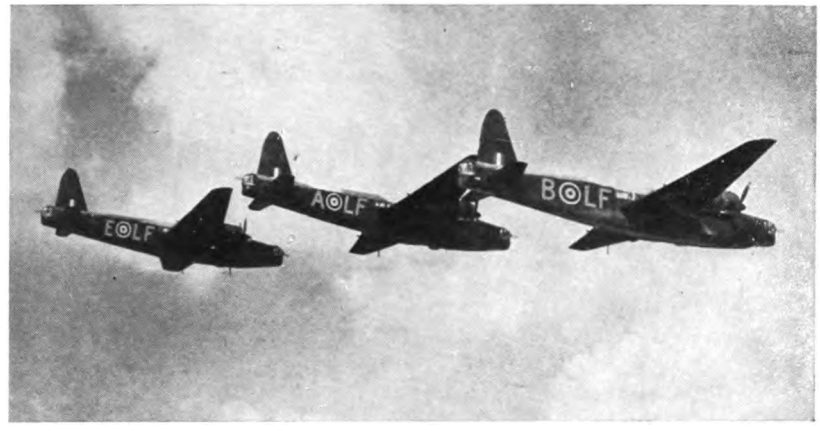

the enemy and kept his head down. On the left are Kittyhawks. *The Coastal Force* reconnoitred, attacked the enemy's supply ports and bases. On the right are Wellingtons, long-range night-bombers.

ranean Sea and the Suez Canal, out through the Red Sea into the Indian Ocean. This route has often been called the lifeline of the British Commonwealth of Nations. The Italian declaration of war in itself virtually denied that route to Britain, not by merit of the Italian Fleet, but because the Mediterranean is a sufficiently narrow sea to be controlled throughout its length by aircraft based on its shores. Whoever stocked the shore airfields with bombers and fighters could pass his own ships through the sea with reasonable safety, and destroy most of the enemy ships that attempted the same route.

By how much would it benefit the Allied war strength as a whole if the Suez Canal route could be reopened to its shipping? By this much. The supply ships and warships destined for the Middle or the Far East, no longer compelled to make the weary journey round the Cape of Good Hope, would save so much time that for the same result only a small proportion of their numbers would be needed. The rest would be available for use in the war elsewhere. It would be the equivalent of presenting the Allies with vast new war and merchant navies. It would be as if all the shipyards of Britain and America produced double their maximum number of new ships for a period of months; or as if all the ships sunk by the U-boat packs for many months were miraculously restored to the surface ready for use again anywhere in the world. It would mean the swifter disposal of stronger Allied armies at any theatre in the global war.

That happy result could be gained only by securing air control of at least the southern and eastern shores and waters of the Mediterranean and by erasing enemy air power in East Africa. In securing that air control, there was always one limiting factor, the distance that an aircraft can fly before it must alight to refuel its petrol tanks. As long as our main air force was based in Egypt, for instance, there were wide stretches of the Mediterranean over which we could exercise no air control at all, simply because our aircraft, particularly our fighters, could not reach them. Directly the airfields of Libya were captured, important stretches of the Mediterranean were at once covered by our air umbrella and became safe for our shipping. To give a practical instance, every time our fighters could use the airfield at Benina just outside Benghazi, we could sail shipping convoys successfully and in reasonable safety to Malta; whenever the enemy held that airfield, ships ran to Malta if at all, only at great peril and with terrible losses.

The first aim was to possess so many airfields that the whole length of the Mediterranean could be controlled and the lifeline shipping route reopened. That is what the Middle East war was about during the period covered by this account; that is why it was a battle for airfields. Infantrymen scaling the rock peaks of Abyssinia, tank crews battling across the Libyan desert, submarine commanders sighting their periscopes off the coast of Italy, observers adjusting bomb sights over Benghazi harbour, gunners on the wharves of besieged Malta, fighter pilots scrambling into the desert air, all these alike and thousands more fought in the same battle, the battle for airfields. All three Services of sea,

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and and air took a great part in this battle; the scantiest story of all their deeds would scarcely cram into many volumes. Nothing so ambitious is attempted here; this is an account of only part of the war—that fought in the air. The only references made to what was happening at the same time on the sea and land are those which are essential if we are to understand what was also happening in the air. Sea and land have equally great chronicles, but this is the story only of the air.

Yet, touched in by reference to the sea and the land as though to a map or timetable, the air itself makes a complete story. The air has its own campaigns, its own battles. The air war which developed over the barren desert, the blue sea of the Middle East, was a new kind of war, a pattern and a prophecy perhaps of war in the future. By the spring of 1942, there was something new in the Middle East; there was air power. Instead of a few squadrons, reinforced by every kind of improvisation and thrown into battle where the need was most, Cairo then controlled a unified air force welded together into a single striking power. There was much reorganisation still to be done, many sad gaps still to be filled, but the pattern and the idea were both there. A true air power had been created to work in collaboration with land power and sea power. The enemy had nothing like it. They had fleets of bombers to supplement the German artillery or extend the gun-range of the Japanese fleet, but air power they did not understand. R.A.F., Middle East, became far more than anything they had conceived. It became in the air what an army is on the ground or a navy at sea—a force fighting in its own element, striking with its comrade Services at the common enemy.

To dissect the whole body of R.A.F., Middle East, as it was in the spring of 1942 would reveal even now too much, since the war is not yet over. But something may be said of its organisation.

Headquarters were housed in an island of tall buildings in Cairo barbed around with wire, outside which chattered and bustled the variegated street life of Egypt—an occasional camel or a cow lumbering ponderously through the stream of limousines and dispatch riders on motor-bicycles, street vendors squatting against the wall to hawk wicker baskets of oranges, a man in a ragged galabieh proferring long purple strips of sugar-cane, black-robed women crowded on a flat cart drawn by a donkey. Behind the wire stood the many offices and the silent control rooms of the headquarters, with as varied a task and responsibility as the Air Ministry in London which it much resembled.

There Air Marshal, afterwards Air Chief Marshal, Sir Arthur W. Tedder, G.C.B., who had succeeded to the command in May 1941, planned his moves, nurtured the strength of an air power which he was busily accumulating in spite of the daily drain of a battle which never stopped; there his deputy, afterwards knighted as Air Marshal Sir Peter Drummond, K.C.B., D.S.O., O.B.E., M.C., and his chiefs of staff, men of long experience in this highly technical business of an air force, worked at its multitudinous detail. Air Chief Marshal Tedder and Air Marshal Drummond remained at the head of R.A.F., Middle East, throughout almost the whole period covered by this account. In the last days, the command passed to Air Chief Marshal Sir Sholto Douglas, K.C.B., M.C., D.F.C.

From Cairo, that two-cities-in-one of luxury and poverty, the arteries of air power branched into many strong limbs. The force in the Western Desert warded off the enemy and kept his head down. The bomber force based on the Suez Canal area struck at the strategic targets of supply ports, naval bases, submarine depots. A force of coastal aircraft based on Alexandria on the one hand and Malta on the other watched over our own shipping and attacked that of the enemy. Day and night fighters guarded the skies of Egypt itself.

These were the main strong limbs. There were many smaller but equally necessary—fighter squadrons that waited in protection of more remote domains, bomber crews who daily searched for submarines in the heat over such waters as the Persian Gulf, ferry pilots who brought convoys of reinforcement aircraft across the jungle from West Africa, an air-sea rescue service, men of the big training schools in East Africa and many more.

Nor should it be forgotten that in all those places where aircraft flew, and many where they did not, a vast company of men of the R.A.F. worked on the ground. They operated the signals, repaired the aircraft, housed the stores, tended the sick and wounded, checked the accounts—clerks, cooks, truck drivers, refuellers, armourers, chemists, photographers and just plain aircrafthands with no particular trade who tackle any job that is going and shyly admit to being the backbone of the Air Force. All these and their comrades worked with the same thought as the air crews, to keep the Air Force flying.

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The hot sun streams down on a desert landing ground. A Boston, trim and perky, has returned from a raid ; four quick, cheerful South Africans come in to report. The Desert Air Force is in action.

2—Airman's Desert

WESTWARDS FROM the startling greenness of the irrigated strip on either side of the river Nile runs a vast desert of varying character, uninhabited save by nomad Arabs living in "villages" of tattered tents, herding camels, studying the waterholes on which their lives depend. To the south-east this desert runs down into the Sudan, to the south-west it links with the Sahara. Here and there along its northern coast are pockets of cultivation out of which the Italians wrought their empire, settling colonists in well-designed community buildings around which were scattered the farms. The largest of these pockets, called the Jebel Akdar, lies in the hump of land to the east of Benghazi, considerable enough to nurture half a dozen towns, the settlements of the Italian colonists, and one big city. Not again is such fertile country reached until the oasis of Tripoli.

The area of those parts of this great desert which lie within the boundaries of Egypt and Libya is roughly equivalent to that of India, but it is with no such vastness that this account must deal. The fighting has nearly all been done in a comparatively narrow coastal strip running from Alexandria in the east to Tripoli in the west, a distance about equal to that between Moscow and Berlin; it is to this coastal strip that the name "Western Desert" refers.

The airmen lived nomadically in the desert, as

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the Bedouins do. There were no tarmac runways, no hangars, no neat headquarters buildings or barracks, no control tower, no concreted petrol stores—the desert airfield was nothing but a large space of desert scraped smooth and hard, around the edges of which were scattered a few tents and trucks, the aircraft and the protective R.A.F. armoured cars. The large square marquees, called E.P.I.P. (European personnel Indian pattern) tents housed the various messes, the operations control, the orderly room. Around them were dispersed ridge tents and waist-high bivouacs as sleeping quarters, each with its V-shaped slit trench handy as an air-raid shelter. The rest of the show stood on wheels. The office of the commanding officer was a caravan trailer. Signals, that lifeblood of the whole force, operated from a few specially-fitted vehicles beneath portable aerial masts. The workshops of the engineers were fitted into lorries. The cookhouse itself was often a trailer with a field kitchen dumped outside. The whole camp, tents and all, could be bundled into trucks and be on its way within an hour.

The men who dwelt on these desert airfields were not dressed in the blue uniform of the R.A.F. In summer the universal clothes were khaki shorts and shirt with an R.A.F. cap, for topees were rarely necessary even in the fiercest heat. In winter the uniform was khaki battle-dress augmented by every sweater and jersey on which the wearer could lay hands, so cold were the nights. In summer it was extremely hot and fly-plagued by day, but the cool of the evening was perfect, the nights silent and splendid under the brightest dome of stars, and a big, round, almost day-bright moon which lost a little of its fascination since at its height and on its wane the landing grounds were regularly bombed. In winter the days were usually bright but the nights bitter, and sometimes there were torrential rains which bog down an aircraft, and turn each rutted track into a morass through which the truck drivers flounder and curse.

The chief torment of the desert was the dust storms. They blew more frequently with the khamsin of the spring, a hot wind from the south with the strength to rip down a tent. Their density was that of a London fog in which every particle was grit. Under the pall of a desert dust storm the whole area darkened into half-night. A man driving a car could not see its bonnet, two men sitting in a creaking and

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Desert day, desert night. In summer, too little water; in winter, sometimes too much. Summer nights were silent and splendid, but men slept like hunters, ready for action. Always there was the menace of dust storms, driven by hot or bitter winds, hours of unabated, gritty misery. But the life was simple and healthy.

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The chief torment of the desert was the dust storms, thick as a London fog, which ripped down tents, covered everything with grit, and made flying impossible.

straining tent could barely discern each other across its width. The dust storm might last for hours of unabated, gritty misery, and, of course all flying was impossible.

That is perhaps too unpleasant a picture of desert life, for there were compensations. For one thing it was extremely healthy; with the exception of desert sores—any small cuts that fester for months when sand filters into them—there was almost no sickness there. Life was simple and the hours of sleep long. The food might be only bully-beef for weeks on end, though usually there was some garnish, but it sufficed. There was nearly always enough water for a cup of chlorinated tea and even for a bath when one had learnt to bathe in a tin drinking mug. There were also the pleasures of contrast; to arrive at the palm trees of the coastal wadi of Maaten Bagush after bumping all day over dust and hillock, and there to strip and swim in the warm blue sea, was a pleasure that had few comparisons. The pilots would think it sentimental to speak of the comradeship of these desert camps, but in every squadron this was most marked. There were few who returned from the desert without some memory of a circle of men squatting outside a tent under the moon, one perhaps playing a violin or a mouth organ, the rest singing—"There was a Monk of Great Renown," "She'll be coming down the moun-

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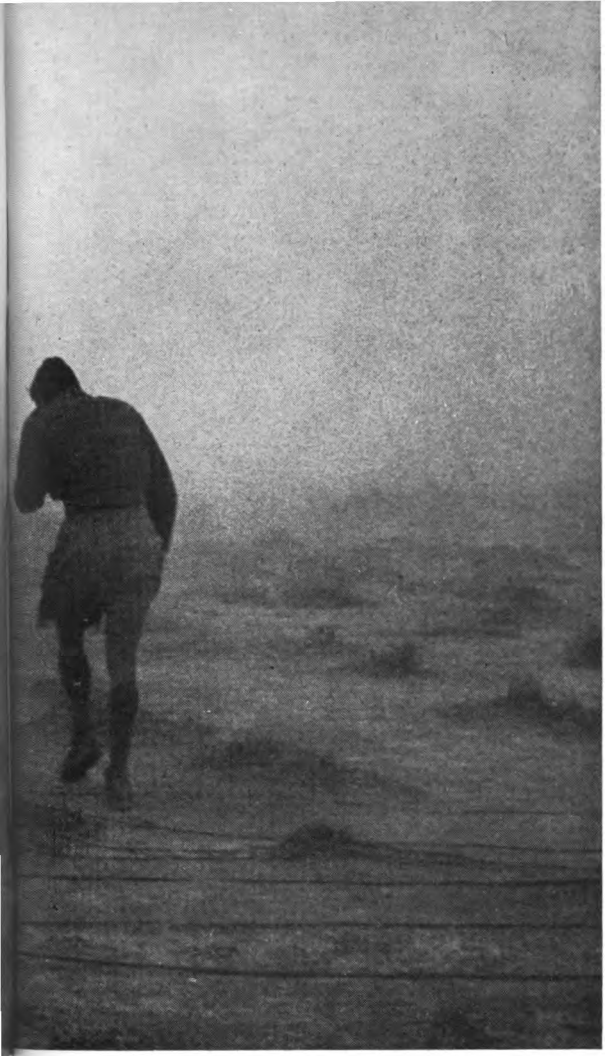

tain," "Shaibah Blues," all that mixture of sentiment and ribaldry which is the folk-music of the Air Force.

Never think, though, that the pilots and air-crews knew only the desert of encampments, or even the vast expanse of openness moving eternally beneath their wings. Deserts have always been associated with one particular peril, that of being stranded in their midst without sufficient food or water. It was a peril to which pilots and air crews were especially exposed. Flying a damaged aircraft over inhabited country, the pilot can make a crash-landing or bale out, always with every hope of succour, even should he fall among foes. Over the desert, even 50 miles from the coast, there is scant hope, unless a man be sufficiently lucky to fall in with a wandering Arab tribesman or a small camel caravan

Remarkable of the desert air war is not how many airmen lost their lives by landing many miles from help, but rather how many of them in such circumstances contrived with great courage and endurance to walk back to their squadrons, often piercing the enemy lines in order to do so

Somewhere in the Western Desert in June 1941, a few officers founded a club which they named the "Late Arrivals Club," for entry to which there was only one qualification. No man could become a member unless, in the words of the club rules, "when obliged to abandon his aircraft, on the ground or in the air, as a result of unfriendly action by the enemy, he succeeded in returning to his squadron, on foot or by other means, long after his Estimated Time of Arrival. It is never too late to come back." Members of the Late Arrivals Club wear a small emblem of a winged flying boot on the left breast of their flying suits. In October 1942, when, as will appear later in this narrative, nearly the whole of the Western Desert had been conquered by the enemy, a man had many hundreds of miles to walk in any attempt to regain our own lines. A Wellington bomber circling Tobruk harbour at nearly 3 o'clock one morning was so damaged that it could not be flown home. One engine caught fire and the propeller came off. The six men of the crew baled out and four of them, a flight sergeant and three sergeants, assembled by the wreck of their aircraft; what happened to the other two they did not know. They counted their possessions at dawn—three full waterbottles, six tins of bully, 16 packets of biscuits, milk tablets, chewing gum and chocolate; with a little toffee, some benzedrine tablets and some matches; and four small compasses. Even in a straight line (and they had to cut south to avoid capture) there were more than 300 miles of desert between them and the British front positions.

That first day they walked from dawn until 4 o'clock in the afternoon, stopping only at a cairn filled with rainwater from which they drank and filled a two-gallon can they found nearby. That night each man supped on two milk tablets and all slept well, although two of them had slight injuries to their legs as a result of parachute landing

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The rest of the story is best told in extracts from a diary which two of the men kept :—

"*Second day.* Set course south-east. Found water hole, had a good drink. At midday, rest and ate a can of bully. More water, had a good drink. 1800 hours, made camp by water hole. Six Hindus escaped from Tobruk came up to camp, well provisioned and plenty of water. Gave them compass. They said they were heading south into the desert. Sgt. A. was weak, his ankle giving him trouble.

"*Fourth day.* Drank out of tin and ate some milk tablets. Two Ju.88s passed overhead, very close and low, took cover. Sighted barbed wire ahead. 1030 hours, crossed border line south of Sollum, heat terrific. Sheltered from sun beneath an u/s* lorry. Found one bottle three parts full of brackish water, drank same. B.'s birthday party, had first good laugh. We had previously intended to try and walk through the whole night, but Sgt. A. was very weak, had bad ankle. Sgt. C. also very weak and bad ankle, flying boots making it very hard to walk. Going was very hard, loose rocks, unable to get good footholds.

"*Sixth day.* (Having walked all the previous night) 0830 hours, made camp, sleep almost impossible. 1730 hours, broke camp, ate one can of chocolate, 16 biscuits, milk tablets. Set course due east. 2030 hours, arrived at an u/s German lorry with four cans of petrol inside same, no water. It was here Sgt. A. decided to leave us. He had been through hell since our starting, despite our efforts to help and assist him. He was wearing flying boots which gave him very little support whilst walking over loose rock. At every rest we made throughout the six days, he was with us. He used to fall down on all fours beside our leaky water can, and sucked what water had seeped out. It was horrible. He was very close to the coast, we could see patrolling planes flying east and west all day and were very close to the railroad. He gave us his mother's address, also address of his girl-friend. He was very worried about them and anxious that they should be notified of his safety. We left him with two bottles of water and one can of chocolate and walked south-east. We walked all night, hard going.

"*Eighth day.* (N.B.—We here started walking at night. Date covers walking period). By this time we figure we are somewhere south of Sidi Barrani. Our next pinpoint will be the Mersa Matruh—Siwa Oasis road. Hope to reach same in two or three nights. 1700 hours, started walking, course slightly south of east. Since leaving Sgt. A. we have been heading east, worrying about Sgt. C., did not want to get too far away from the coast. 1800 hours, here Sgt. C. decided to leave us. Like Sgt. A. he has had a tough time since our starting, it was cruel, since leaving Sollum we have been walking on loose rock. Figuring him to be no more than a day to a day and a half from the coast we left him with a water can with two bottles of water in same, a tin of chocolate, a chocolate bar, some milk tablets and some gum. He was very game. He gave us his mother's address and wanted us to notify her of his safety. We left him in the shelter of an u/s lorry.

"Between the two of us we now had left four tins of bully-beef, three tins of ration chocolate, about 16 biscuits, about 20 milk tablets, three full waterbottles, two empty same, our two-gallon tin about three parts full. Having reckoned on the trek taking us 20 days at the beginning and having already walked eight of same we rationed accordingly for the remainder. We tried to make a can of bully-beef last the two of us three days.

"*Tenth day.* Started walking, course south-east, hard going, rocks and sandstorm. Found old tomb, decided to remain all night, very fatigued, sandstorm intense. Ate a few biscuits, had a drink each and slept all night.

"*Twelfth day.* Met two Arabs driving camels to Siwa Oasis. They gave us about three pints of water and two handfuls of dates in exchange for 45 piastres (all the money we had). Also gave us a good drink and a smoke out of a pipe, home-grown tobacco. 'Smoke' floored us.

"*Fourteenth day.* Had a little rain shower. Managed to have a good drink out of a rock pool, not enough to collect. Sole falling off Sgt. D.'s shoe, had to fix. F/Sgt. B.'s boot also in miserable condition.

* "U/s" is the standard R.A.F abbreviation for "unserviceable."

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"*Fifteenth day*. Shoes repaired. We walked until 1100 hours, our shoes were giving us trouble, wire fixings cutting into our feet. decided to stop and rest, heat terrific, had a little to eat and drink, made shelter of brush. 0630 hours, made our way to the edge of the Qattara Depression. The country down below seemed to be excellent to walk upon as seen by us from the top, so we decided to make our way down the cliff-side, same was hard going, very steep and dangerous in parts. ruined shoes completely.

"*Sixteenth day*. Decided to stay night at a date grove. No dates. shoes giving trouble. Very weak, food and water getting low, tough going. Had a good sleep after a little to eat and drink

"*Seventeenth day*. Started walking, hard going, shoes giving trouble, very hot, salt marsh, fairly weak. The marsh was all dried up and we were walking over salt crags which in appearance resemble waves and were 18 to 24 inches high. Being unable to walk in between same we were compelled to walk along the top, stepping from one to another. It was very hot. The food and water were both getting low, but since starting we had always figured on having insufficient to last

"*Eighteenth day*. We made camp at 0900 hours. Sleep was almost impossible, partly because of exhaustion and mostly because of the continual gnawing in our stomachs and the thoughts of food and cool drinks that we could not keep out of our minds. Towards dusk we met three Bedouin driving camels, who made us two rounds of bread six to seven inches in circumference, called 'grassa' and which, although they gave us almost unbearable attacks of indigestion, were devoured to the last morsel. To-night we came upon soft salt, it was tough walking—placing one foot down it would sink up to your shin in soft mud, and having no foothold it was necessary immediately to place your other foot in front of the first to keep walking. We made no more than 15 miles a day through this.

"*Twentieth day*. Last night our food gave out, despite our rationing. Water was very low, just about two bottles full. We were very weak, shoes just about off our feet. At night we came upon five Bedouin driving about 70 camels. They gave us a handful of dates and a drink of salty water.

"*Twenty-first day*. Attempting to walk a few miles during the day, the weather not being very hot, we came across two Bedouin grazing camels. Taking us into their camp they fed us with rice and camels' milk diluted with water. The former tasted like macaroni and cheese, the latter, although very strong, was quite refreshing.

"*Twenty-second day*. We entered camp amidst very curious Arabs. Fed on dates, rice and oil, and drank salty water. Quite a ritual. Still very weak, but recovered.

"*Twenty-fourth day*. Arrived at a salt lake at about 0400 hours, mosquitoes unbearable. Hearing and finally sighting what seemed to be a motor lorry from a nearby hill about 0800 hours we headed north and were finally picked up by an advanced armoured division about 5 to 10 miles north of El Maghra."

F/Sgt. B. and Sgt. D. return to their squadron, after 24 days and nights on foot in the desert. The water-bottles are German, Italian and British; the leaky two-gallon can is still with them. Note their shoes, fixed with wire. They had seen the Allied barrage at Alamein from behind the enemy's lines

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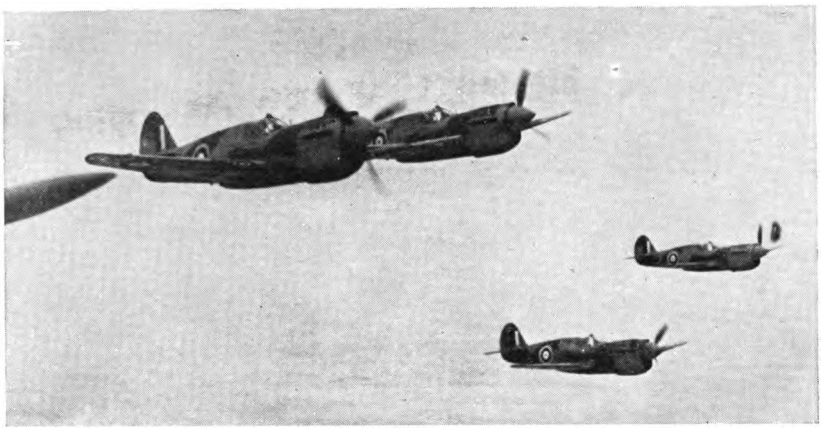

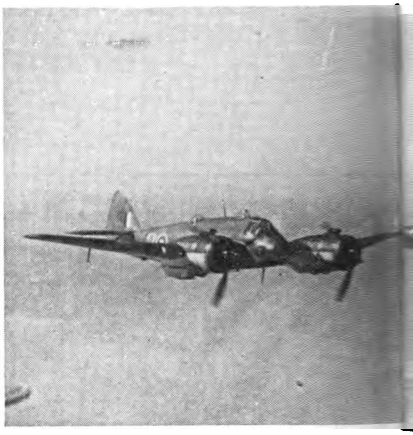

The strong limbs of Air Power. *The Desert Force*, of fighters and light bombers, warded off watched over our shipping and struck at sea. The centre picture shows Beaufighters. *The Bomber Force*

other in East Africa and Abyssinia where the Emperor had been reinstated. By hard fighting a place had been kept in the battle of the Mediterranean, and control of the Red Sea had been wholly established.

The air above all this territory, ranging between the extremes of temperature and weather, ice to coat an instrument panel, sun heat to blister a bare hand, dust storms to blot out land and sky, electric storms to dance in blue fire on wing-tips, had been, and continued to be, the battle-field of the Middle East Command of the Royal Air Force. This Command has existed almost as long as the military use of aircraft. Head-quarters, R.A.F., Middle East, were set up in Cairo in 1915 to control the air war over the Mediterranean and Red Seas, and the countries of their shores. When peace came after the first world war, R.A.F., Middle East, remained, its area of control diminished, but still a permanent garrison of the air. So that it was something more than the tradition of a name which entered the present war; it was a Command in being.

Into this organisation and under this name units of other air forces had been added during the course of the war. When Italy declared herself against us, the bulk of the squadrons of the Middle East were, and have remained, those of the R.A.F. manned from the British Isles. Even in those early days, however, they were strengthened by squadrons of the Royal Australian Air Force, the South African Air Force and a noted squadron from Southern Rhodesia; men of the Royal Canadian Air Force and of the Royal New Zealand and Royal Australian Air Forces were posted in large numbers to the British squadrons, and later came complete Canadian squadrons; as the war progressed they were to receive squadrons of the Fighting French Air Force, the Royal Hellenic Air Force and the Royal Yugoslav Air Force; it was not long before men of the air forces of most of the United Nations were numerous comrades in their tents. Later whole formations of the United States Army Air Force flew in to work beside them. The old name remained—R.A.F., Middle East—but it must always be read in the sense of a powerful air force of the United Nations, an international air force, working as an harmonious team under the operational control of the R.A.F.

It had not always been powerful. In June, 1940, the Air Officer Commanding-in-Chief, Air Chief Marshal Sir Arthur Longmore, K.C.B., D.S.O., faced almost impossible odds with a handful of squadrons flying into battle in obsolescent aircraft; nevertheless, on most occasions they held the enemy out of the air. The difficulties of reinforcing and supplying the Middle East over a sea route 14,000 miles long, at a time when Britain herself needed every aircraft that would fly, do not require emphasis. By the spring of 1942, however, a formidable air weapon had been built in the Middle East, and had been trained to a theory and a plan.

It must be made clear for what purpose this power was created, what was the object of the whole war in the Middle East, what was to be gained by victory or lost in defeat.

The first prize of the war was a shipping route, running from Gibraltar through the Mediter-

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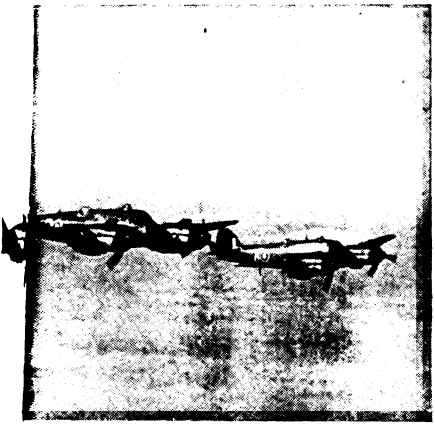

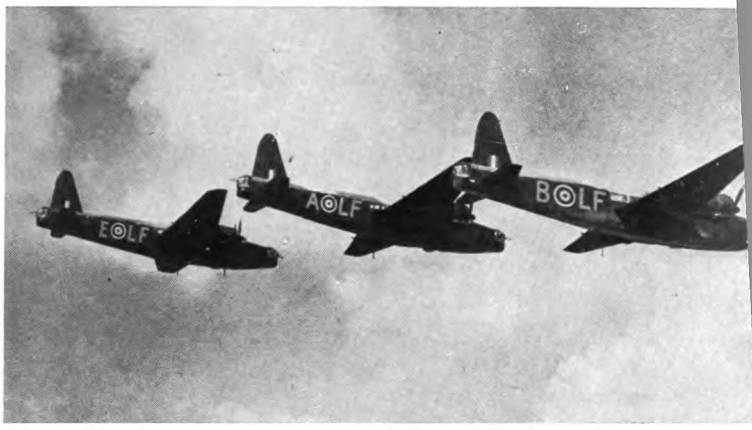

the enemy and kept his head down. On the left are Kittyhawks. *The Coastal Force* reconnoitred, attacked the enemy's supply ports and bases. On the right are Wellingtons, long-range night-bombers.

ranean Sea and the Suez Canal, out through the Red Sea into the Indian Ocean. This route has often been called the lifeline of the British Commonwealth of Nations. The Italian declaration of war in itself virtually denied that route to Britain, not by merit of the Italian Fleet, but because the Mediterranean is a sufficiently narrow sea to be controlled throughout its length by aircraft based on its shores. Whoever stocked the shore airfields with bombers and fighters could pass his own ships through the sea with reasonable safety, and destroy most of the enemy ships that attempted the same route.

By how much would it benefit the Allied war strength as a whole if the Suez Canal route could be reopened to its shipping? By this much. The supply ships and warships destined for the Middle or the Far East, no longer compelled to make the weary journey round the Cape of Good Hope, would save so much time that for the same result only a small proportion of their numbers would be needed. The rest would be available for use in the war elsewhere. It would be the equivalent of presenting the Allies with vast new war and merchant navies. It would be as if all the shipyards of Britain and America produced double their maximum number of new ships for a period of months; or as if all the ships sunk by the U-boat packs for many months were miraculously restored to the surface ready for use again anywhere in the world. It would mean the swifter disposal of stronger Allied armies at any theatre in the global war.

That happy result could be gained only by securing air control of at least the southern and eastern shores and waters of the Mediterranean and by erasing enemy air power in East Africa. In securing that air control, there was always one limiting factor, the distance that an aircraft can fly before it must alight to refuel its petrol tanks. As long as our main air force was based in Egypt, for instance, there were wide stretches of the Mediterranean over which we could exercise no air control at all, simply because our aircraft, particularly our fighters, could not reach them. Directly the airfields of Libya were captured, important stretches of the Mediterranean were at once covered by our air umbrella and became safe for our shipping. To give a practical instance, every time our fighters could use the airfield at Benina just outside Benghazi, we could sail shipping convoys successfully and in reasonable safety to Malta; whenever the enemy held that airfield, ships ran to Malta if at all, only at great peril and with terrible losses.

The first aim was to possess so many airfields that the whole length of the Mediterranean could be controlled and the lifeline shipping route reopened. That is what the Middle East war was about during the period covered by this account; that is why it was a battle for airfields. Infantrymen scaling the rock peaks of Abyssinia, tank crews battling across the Libyan desert, submarine commanders sighting their periscopes off the coast of Italy, observers adjusting bomb sights over Benghazi harbour, gunners on the wharves of besieged Malta, fighter pilots scrambling into the desert air, all these alike and thousands more fought in the same battle, the battle for airfields. All three Services of sea,

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and and air took a great part in this battle; the scantiest story of all their deeds would scarcely cram into many volumes. Nothing so ambitious is attempted here; this is an account of only part of the war—that fought in the air. The only references made to what was happening at the same time on the sea and land are those which are essential if we are to understand what was also happening in the air. Sea and land have equally great chronicles, but this is the story only of the air.

Yet, touched in by reference to the sea and the land as though to a map or timetable, the air itself makes a complete story. The air has its own campaigns, its own battles. The air war which developed over the barren desert, the blue sea of the Middle East, was a new kind of war, a pattern and a prophecy perhaps of war in the future. By the spring of 1942, there was something new in the Middle East; there was air power. Instead of a few squadrons, reinforced by every kind of improvisation and thrown into battle where the need was most, Cairo then controlled a unified air force welded together into a single striking power. There was much reorganisation still to be done, many sad gaps still to be filled, but the pattern and the idea were both there. A true air power had been created to work in collaboration with land power and sea power. The enemy had nothing like it. They had fleets of bombers to supplement the German artillery or extend the gun-range of the Japanese fleet, but air power they did not understand. R.A.F., Middle East, became far more than anything they had conceived. It became in the air what an army is on the ground or a navy at sea—a force fighting in its own element, striking with its comrade Services at the common enemy.

To dissect the whole body of R.A.F., Middle East, as it was in the spring of 1942 would reveal even now too much, since the war is not yet over. But something may be said of its organisation.

Headquarters were housed in an island of tall buildings in Cairo barbed around with wire, outside which chattered and bustled the variegated street life of Egypt—an occasional camel or a cow lumbering ponderously through the stream of limousines and dispatch riders on motor-bicycles, street vendors squatting against the wall to hawk wicker baskets of oranges, a man in a ragged galabieh proferring long purple strips of sugar-cane, black-robed women crowded on a flat cart drawn by a donkey. Behind the wire stood the many offices and the silent control rooms of the headquarters, with as varied a task and responsibility as the Air Ministry in London which it much resembled.

There Air Marshal, afterwards Air Chief Marshal, Sir Arthur W. Tedder, G.C.B., who had succeeded to the command in May 1941, planned his moves, nurtured the strength of an air power which he was busily accumulating in spite of the daily drain of a battle which never stopped; there his deputy, afterwards knighted as Air Marshal Sir Peter Drummond, K.C.B., D.S.O., O.B.E., M.C., and his chiefs of staff, men of long experience in this highly technical business of an air force, worked at its multitudinous detail. Air Chief Marshal Tedder and Air Marshal Drummond remained at the head of R.A.F., Middle East, throughout almost the whole period covered by this account. In the last days, the command passed to Air Chief Marshal Sir Sholto Douglas, K.C.B., M.C., D.F.C.

From Cairo, that two-cities-in-one of luxury and poverty, the arteries of air power branched into many strong limbs. The force in the Western Desert warded off the enemy and kept his head down. The bomber force based on the Suez Canal area struck at the strategic targets of supply ports, naval bases, submarine depots. A force of coastal aircraft based on Alexandria on the one hand and Malta on the other watched over our own shipping and attacked that of the enemy. Day and night fighters guarded the skies of Egypt itself.

These were the main strong limbs. There were many smaller but equally necessary—fighter squadrons that waited in protection of more remote domains, bomber crews who daily searched for submarines in the heat over such waters as the Persian Gulf, ferry pilots who brought convoys of reinforcement aircraft across the jungle from West Africa, an air-sea rescue service, men of the big training schools in East Africa and many more.

Nor should it be forgotten that in all those places where aircraft flew, and many where they did not, a vast company of men of the R.A.F. worked on the ground. They operated the signals, repaired the aircraft, housed the stores, tended the sick and wounded, checked the accounts—clerks, cooks, truck drivers, refuellers, armourers, chemists, photographers and just plain aircrafthands with no particular trade who tackle any job that is going and shyly admit to being the backbone of the Air Force. All these and their comrades worked with the same thought as the air crews, to keep the Air Force flying.

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UNIVERSITY OF MICHIGAN

The hot sun streams down on a desert landing ground. A Boston, trim and perky, has returned from a raid ; four quick, cheerful South Africans come in to report. The Desert Air Force is in action.

2—Airman's Desert

WESTWARDS FROM the startling greenness of the irrigated strip on either side of the river Nile runs a vast desert of varying character, uninhabited save by nomad Arabs living in "villages" of tattered tents, herding camels, studying the waterholes on which their lives depend. To the south-east this desert runs down into the Sudan, to the south-west it links with the Sahara. Here and there along its northern coast are pockets of cultivation out of which the Italians wrought their empire, settling colonists in well-designed community buildings around which were scattered the farms. The largest of these pockets, called the Jebel Akdar, lies in the hump of land to the east of Benghazi, considerable enough to nurture half a dozen towns, the settlements of the Italian colonists, and one big city. Not again is such fertile country reached until the oasis of Tripoli.

The area of those parts of this great desert which lie within the boundaries of Egypt and Libya is roughly equivalent to that of India, but it is with no such vastness that this account must deal. The fighting has nearly all been done in a comparatively narrow coastal strip running from Alexandria in the east to Tripoli in the west, a distance about equal to that between Moscow and Berlin; it is to this coastal strip that the name "Western Desert" refers.

The airmen lived nomadically in the desert, as

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the Bedouins do. There were no tarmac runways, no hangars, no neat headquarters buildings or barracks, no control tower, no concreted petrol stores—the desert airfield was nothing but a large space of desert scraped smooth and hard, around the edges of which were scattered a few tents and trucks, the aircraft and the protective R.A.F. armoured cars. The large square marquees, called E.P.I.P. (European personnel Indian pattern) tents housed the various messes, the operations control, the orderly room. Around them were dispersed ridge tents and waist-high bivouacs as sleeping quarters, each with its V-shaped slit trench handy as an air-raid shelter. The rest of the show stood on wheels. The office of the commanding officer was a caravan trailer. Signals, that lifeblood of the whole force, operated from a few specially-fitted vehicles beneath portable aerial masts. The workshops of the engineers were fitted into lorries. The cookhouse itself was often a trailer with a field kitchen dumped outside. The whole camp, tents and all, could be bundled into trucks and be on its way within an hour.

The men who dwelt on these desert airfields were not dressed in the blue uniform of the R.A.F. In summer the universal clothes were khaki shorts and shirt with an R.A.F. cap, for topees were rarely necessary even in the fiercest heat. In winter the uniform was khaki battle-dress augmented by every sweater and jersey on which the wearer could lay hands, so cold were the nights. In summer it was extremely hot and fly-plagued by day, but the cool of the evening was perfect, the nights silent and splendid under the brightest dome of stars, and a big, round, almost day-bright moon which lost a little of its fascination since at its height and on its wane the landing grounds were regularly bombed. In winter the days were usually bright but the nights bitter, and sometimes there were torrential rains which bog down an aircraft, and turn each rutted track into a morass through which the truck drivers flounder and curse.

The chief torment of the desert was the dust storms. They blew more frequently with the khamsin of the spring, a hot wind from the south with the strength to rip down a tent. Their density was that of a London fog in which every particle was grit. Under the pall of a desert dust storm the whole area darkened into half-night. A man driving a car could not see its bonnet, two men sitting in a creaking and

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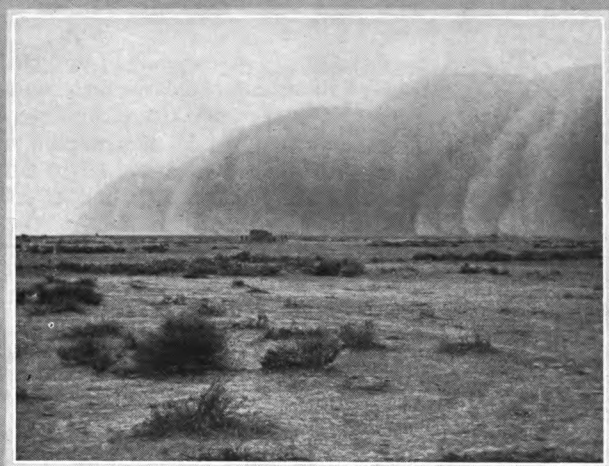

Desert day, desert night. In summer, too little water; in winter, sometimes too much. Summer nights were silent and splendid, but men slept like hunters, ready for action. Always there was the menace of dust storms, driven by hot or bitter winds, hours of unabated, gritty misery. But the life was simple and healthy.

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The chief torment of the desert was the dust storms, thick as a London fog, which ripped down tents, covered everything with grit, and made flying impossible.

straining tent could barely discern each other across its width. The dust storm might last for hours of unabated, gritty misery, and, of course all flying was impossible.

That is perhaps too unpleasant a picture of desert life, for there were compensations. For one thing it was extremely healthy; with the exception of desert sores—any small cuts that fester for months when sand filters into them—there was almost no sickness there. Life was simple and the hours of sleep long. The food might be only bully-beef for weeks on end, though usually there was some garnish, but it sufficed. There was nearly always enough water for a cup of chlorinated tea and even for a bath when one had learnt to bathe in a tin drinking mug. There were also the pleasures of contrast; to arrive at the palm trees of the coastal wadi of Maaten Bagush after bumping all day over dust and hillock, and there to strip and swim in the warm blue sea, was a pleasure that had few comparisons. The pilots would think it sentimental to speak of the comradeship of these desert camps, but in every squadron this was most marked. There were few who returned from the desert without some memory of a circle of men squatting outside a tent under the moon, one perhaps playing a violin or a mouth organ, the rest singing—"There was a Monk of Great Renown," "She'll be coming down the moun-

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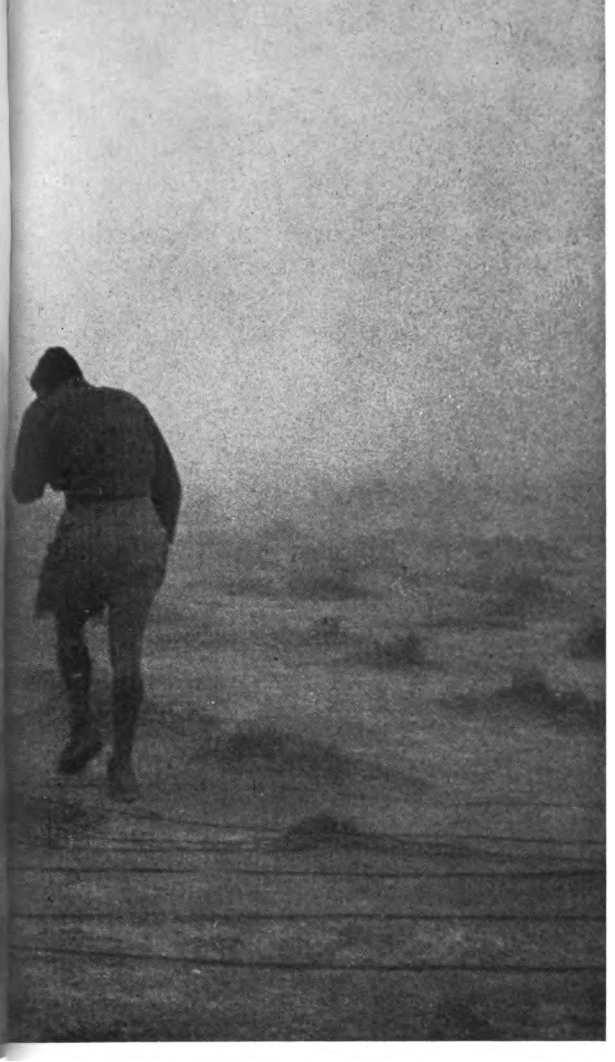

tain," "Shaibah Blues," all that mixture of sentiment and ribaldry which is the folk-music of the Air Force.

Never think, though, that the pilots and aircrews knew only the desert of encampments, or even the vast expanse of openness moving eternally beneath their wings. Deserts have always been associated with one particular peril, that of being stranded in their midst without sufficient food or water. It was a peril to which pilots and air crews were especially exposed. Flying a damaged aircraft over inhabited country, the pilot can make a crash-landing or bale out, always with every hope of succour, even should he fall among foes. Over the desert, even 50 miles from the coast, there is scant hope, unless a man be sufficiently lucky to fall in with a wandering Arab tribesman or a small camel caravan

Remarkable of the desert air war is not how many airmen lost their lives by landing many miles from help, but rather how many of them in such circumstances contrived with great courage and endurance to walk back to their squadrons, often piercing the enemy lines in order to do so

Somewhere in the Western Desert in June 1941, a few officers founded a club which they named the "Late Arrivals Club," for entry to which there was only one qualification. No man could become a member unless, in the words of the club rules, "when obliged to abandon his aircraft, on the ground or in the air, as a result of unfriendly action by the enemy, he succeeded in returning to his squadron, on foot or by other means, long after his Estimated Time of Arrival. It is never too late to come back." Members of the Late Arrivals Club wear a small emblem of a winged flying boot on the left breast of their flying suits. In October 1942, when, as will appear later in this narrative, nearly the whole of the Western Desert had been conquered by the enemy, a man had many hundreds of miles to walk in any attempt to regain our own lines. A Wellington bomber circling Tobruk harbour at nearly 3 o'clock one morning was so damaged that it could not be flown home. One engine caught fire and the propeller came off. The six men of the crew baled out and four of them, a flight sergeant and three sergeants, assembled by the wreck of their aircraft; what happened to the other two they did not know. They counted their possessions at dawn—three full waterbottles, six tins of bully, 16 packets of biscuits, milk tablets, chewing gum and chocolate; with a little toffee, some benzedrine tablets and some matches; and four small compasses. Even in a straight line (and they had to cut south to avoid capture) there were more than 300 miles of desert between them and the British front positions.

That first day they walked from dawn until 4 o'clock in the afternoon, stopping only at a cairn filled with rainwater from which they drank and filled a two-gallon can they found nearby. That night each man supped on two milk tablets and all slept well, although two of them had slight injuries to their legs as a result of parachute landing

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The rest of the story is best told in extracts from a diary which two of the men kept :—

"*Second day.* Set course south-east. Found water hole, had a good drink. At midday, rest and ate a can of bully. More water, had a good drink. 1800 hours, made camp by water hole. Six Hindus escaped from Tobruk came up to camp, well provisioned and plenty of water. Gave them compass. They said they were heading south into the desert. Sgt. A. was weak, his ankle giving him trouble.

"*Fourth day.* Drank out of tin and ate some milk tablets. Two Ju.88s passed overhead, very close and low, took cover. Sighted barbed wire ahead. 1030 hours, crossed border line south of Sollum, heat terrific. Sheltered from sun beneath an u/s* lorry. Found one bottle three parts full of brackish water, drank same. B.'s birthday party, had first good laugh. We had previously intended to try and walk through the whole night, but Sgt. A. was very weak, had bad ankle. Sgt. C. also very weak and bad ankle, flying boots making it very hard to walk. Going was very hard, loose rocks, unable to get good footholds.

"*Sixth day.* (Having walked all the previous night) 0830 hours, made camp, sleep almost impossible. 1730 hours, broke camp, ate one can of chocolate, 16 biscuits, milk tablets. Set course due east. 2030 hours, arrived at an u/s German lorry with four cans of petrol inside same, no water. It was here Sgt. A. decided to leave us. He had been through hell since our starting, despite our efforts to help and assist him. He was wearing flying boots which gave him very little support whilst walking over loose rock. At every rest we made throughout the six days, he was with us. He used to fall down on all fours beside our leaky water can, and sucked what water had seeped out. It was horrible. He was very close to the coast, we could see patrolling planes flying east and west all day and were very close to the railroad. He gave us his mother's address, also address of his girl-friend. He was very worried about them and anxious that they should be notified of his safety. We left him with two bottles of water and one can of chocolate and walked south-east. We walked all night, hard going.

"*Eighth day.* (N.B.—We here started walking at night. Date covers walking period). By this time we figure we are somewhere south of Sidi Barrani. Our next pinpoint will be the Mersa Matruh—Siwa Oasis road. Hope to reach same in two or three nights. 1700 hours, started walking, course slightly south of east. Since leaving Sgt. A. we have been heading east, worrying about Sgt. C., did not want to get too far away from the coast. 1800 hours, here Sgt. C. decided to leave us. Like Sgt. A. he has had a tough time since our starting, it was cruel, since leaving Sollum we have been walking on loose rock. Figuring him to be no more than a day to a day and a half from the coast we left him with a water can with two bottles of water in same, a tin of chocolate, a chocolate bar, some milk tablets and some gum. He was very game. He gave us his mother's address and wanted us to notify her of his safety. We left him in the shelter of an u/s lorry.

"Between the two of us we now had left four tins of bully-beef, three tins of ration chocolate, about 16 biscuits, about 20 milk tablets, three full waterbottles, two empty same, our two-gallon tin about three parts full. Having reckoned on the trek taking us 20 days at the beginning and having already walked eight of same we rationed accordingly for the remainder. We tried to make a can of bully-beef last the two of us three days.

"*Tenth day.* Started walking, course south-east, hard going, rocks and sandstorm. Found old tomb, decided to remain all night, very fatigued, sandstorm intense. Ate a few biscuits, had a drink each and slept all night.

"*Twelfth day.* Met two Arabs driving camels to Siwa Oasis. They gave us about three pints of water and two handfuls of dates in exchange for 45 piastres (all the money we had). Also gave us a good drink and a smoke out of a pipe, home-grown tobacco. 'Smoke' floored us.

"*Fourteenth day.* Had a little rain shower. Managed to have a good drink out of a rock pool, not enough to collect. Sole falling off Sgt. D.'s shoe, had to fix. F/Sgt. B.'s boot also in miserable condition.

* "U/s" is the standard R.A.F abbreviation for "unserviceable."

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"*Fifteenth day*. Shoes repaired. We walked until 1100 hours, our shoes were giving us trouble, wire fixings cutting into our feet. decided to stop and rest, heat terrific, had a little to eat and drink, made shelter of brush. 0630 hours, made our way to the edge of the Qattara Depression. The country down below seemed to be excellent to walk upon as seen by us from the top, so we decided to make our way down the cliff-side, same was hard going, very steep and dangerous in parts. ruined shoes completely.

"*Sixteenth day*. Decided to stay night at a date grove. No dates shoes giving trouble. Very weak, food and water getting low, tough going. Had a good sleep after a little to eat and drink

"*Seventeenth day*. Started walking, hard going, shoes giving trouble, very hot, salt marsh, fairly weak. The marsh was all dried up and we were walking over salt crags which in appearance resemble waves and were 18 to 24 inches high. Being unable to walk in between same we were compelled to walk along the top, stepping from one to another. It was very hot. The food and water were both getting low, but since starting we had always figured on having insufficient to last

"*Eighteenth day*. We made camp at 0900 hours. Sleep was almost impossible, partly because of exhaustion and mostly because of the continual gnawing in our stomachs and the thoughts of food and cool drinks that we could not keep out of our minds. Towards dusk we met three Bedouin driving camels, who made us two rounds of bread six to seven inches in circumference, called 'grassa' and which, although they gave us almost unbearable attacks of indigestion, were devoured to the last morsel. To-night we came upon soft salt, it was tough walking—placing one foot down it would sink up to your shin in soft mud, and having no foothold it was necessary immediately to place your other foot in front of the first to keep walking. We made no more than 15 miles a day through this.

"*Twentieth day*. Last night our food gave out, despite our rationing. Water was very low, just about two bottles full. We were very weak, shoes just about off our feet. At night we came upon five Bedouin driving about 70 camels. They gave us a handful of dates and a drink of salty water.

"*Twenty-first day*. Attempting to walk a few miles during the day, the weather not being very hot, we came across two Bedouin grazing camels. Taking us into their camp they fed us with rice and camels' milk diluted with water. The former tasted like macaroni and cheese, the latter, although very strong, was quite refreshing.

"*Twenty-second day*. We entered camp amidst very curious Arabs. Fed on dates, rice and oil, and drank salty water. Quite a ritual. Still very weak, but recovered.

"*Twenty-fourth day*. Arrived at a salt lake at about 0400 hours, mosquitoes unbearable. Hearing and finally sighting what seemed to be a motor lorry from a nearby hill about 0800 hours we headed north and were finally picked up by an advanced armoured division about 5 to 10 miles north of El Maghra."

F/Sgt. B. and Sgt. D. return to their squadron, after 24 days and nights on foot in the desert. The water-bottles are German, Italian and British; the leaky two-gallon can is still with them. Note their shoes, fixed with wire. They had seen the Allied barrage at Alamein from behind the enemy's lines

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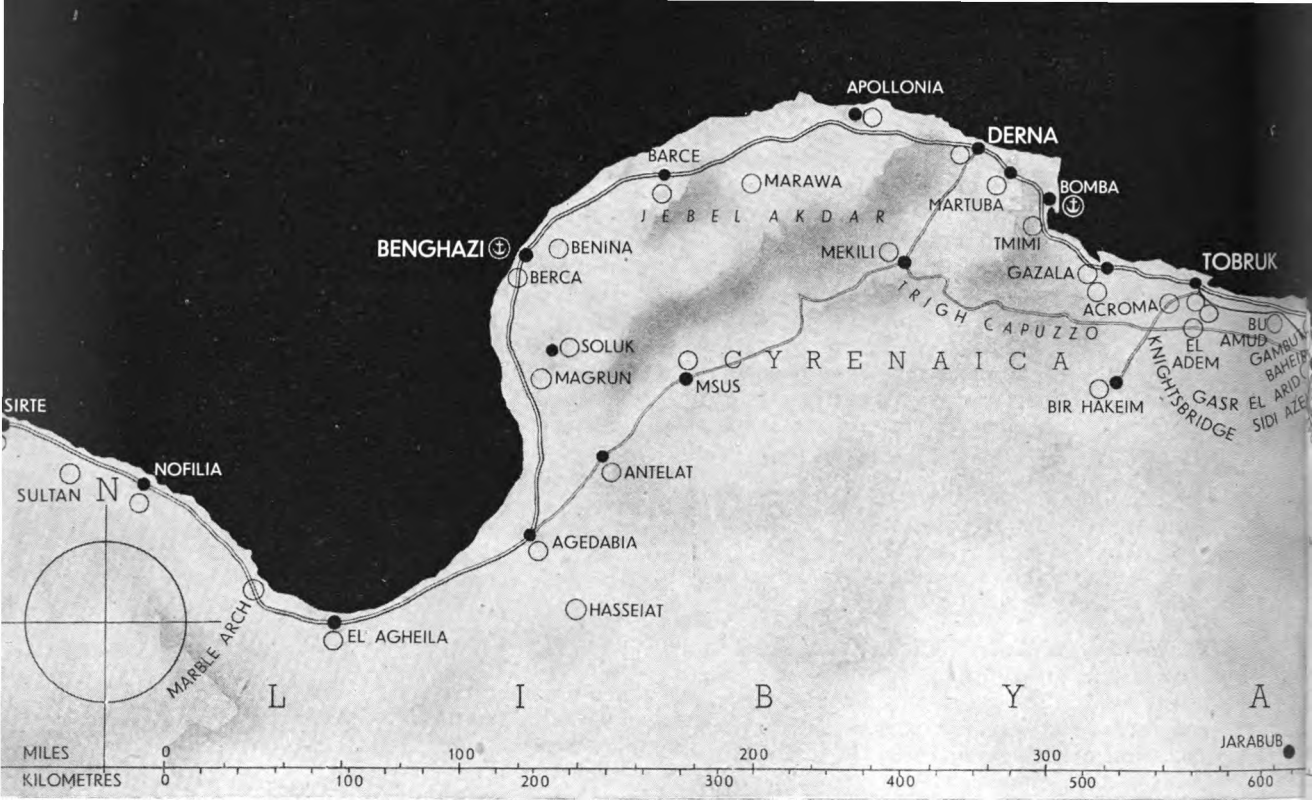

The Western Desert. Nearly all the fighting swung to and fro along this narrow coastal

The Army unit which picked them up brought these two airmen—a Canadian and an Australian—safely back to their squadron. It tells much of the character of desert flying to record that, by the end of 1942, the Late Arrivals Club had a list of 345 members.

That is one more aspect of the desert which many of the pilots knew. Normally, however—for they hoped to traverse it always in the air and not on foot—they saw it as a sea of emptiness beneath them, across which they had to navigate their way much as their comrades engaged over the Mediterranean steered their aircraft, with few landmarks or signposts.

The geography of the Western Desert is familiar, since campaigns waged back and forth across it for more than two years. Yet the pilot's desert geography was something unusual. When his aircraft kicked out a plume of sand and took off from a square of flattened claypan, his view was divided into two halves, running always from east to west. On his right hand stretched the fabled blue of the Mediterranean, on his left a still vaster space of fawn-coloured emptiness, shadowed here and there with the darkness of a patch of knee-high camelthorn, with a bluff, a wadi, and intersected everywhere by thousands of criss-crossing tyre tracks. The division of these two halves of his view were the coast, the coast road and the railway to Tobruk, all roughly parallel and all bunched together.

He saw on his right the towns. A village at Burg el Arab with a crenellated fort in the best story-book manner; a small Egyptian watering-place at Mersa Matruh; the hamlet of Sidi Barrani; another on the shores of the little circular bright-blue bay of Sollum, where the road winds up a towering cliff at the water's edge; the white buildings of the natural fortress of Bardia on the cliff-top; Tobruk curving round a small land-locked bay; then nothing more till the towns of the Jebel Akdar and the big white city of Benghazi.

But he was far more concerned with the landing grounds, of which in the desert there were hundreds, often grouped in bunches of

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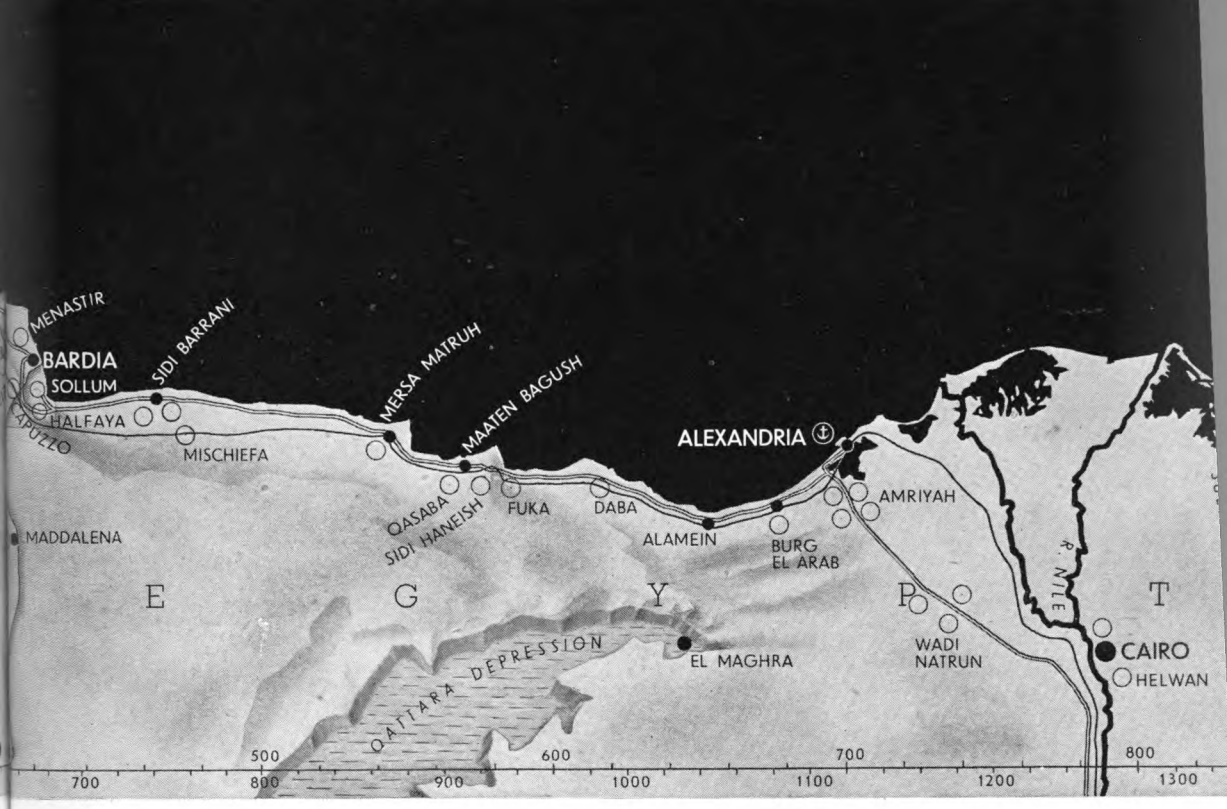

strip. The principal airfields are shown by circles; there were scores of satellite landing grounds.

three and four separated by only a few miles. There were dozens of them for the night bombers right back in the Suez Canal zone, dozens more grouped around the Cairo-Alexandria road. Out in the desert itself the more easterly were mostly placed on the table of the Libyan plateau which rises just south of the coast to a height of some 200 feet. From east to west the main groups of landing grounds were at Daba, Fuka, Sidi Haneish, Sidi Barrani, Sidi Azeiz, Baheira, Gambut, Tobruk, Gazala, Martuba, Derna, Mekili, Msus, Agedabia. That by no means exhausted them. There were scores more dotted all over Egypt and Cyrenaica, scores more still extending into Tripolitania. Where they lacked, they could be made from virgin desert in a few hours by a determined ground-party.

Along the desert coast, pressed close to the sea, there is a string of wadis in which cultivation is possible; it was once one of the great agricultural areas of the world, and even now is fertile with occasional tomatoes, onions, little stunted stems of corn and a multitude of wild flowers; but inland a couple of miles lies desolation—a wide expanse of country, sometimes flat, sometimes rolling, soft sand in one area, rock in another, naked here but dotted there with brown-grey knee-high scrub on which an occasional herd of camels browses, to the scant interest of the white-robed herdsman.

The border between Egypt and Libya runs north and south just west of the clifftop at Sollum, marked by mile after mile of the barbed wire fence which Mussolini built to discourage tribesmen from emigration on such occasions as the hurling of their chieftains to death from aircraft flying above their villages. Just beyond the border, the great Italian coast road to Tripoli starts with a triumphal arch and a cemetery of German dead. There too starts one of the great desert tracks, the Trigh Capuzzo, rutted and murderous to car springs but broad and well defined. South-west of Tobruk the Trigh intersects another big track, the Trigh Bir Hakeim, and the point of intersection has been christened Knightsbridge.

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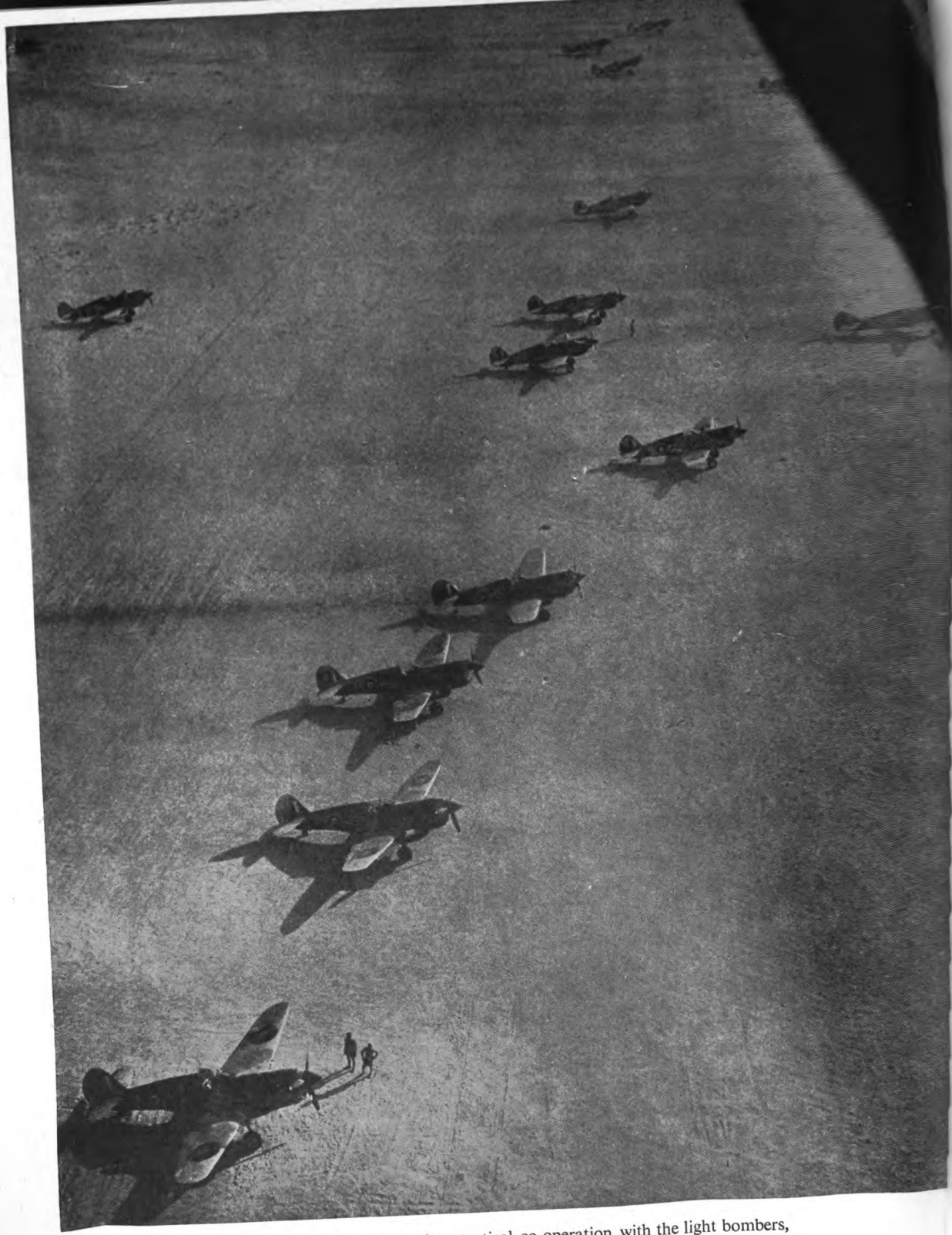

The Newcomers. Kittyhawk fighters, whose close tactical co-operation with the light bombers, perfected through hard-fighting weeks of experiment, was to change the whole shape of the desert war.

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3—Hard-Fighting Weeks: the Pattern Forms

THE R.A.F. BEGAN the war in this desert around Mersa Matruh in the summer of 1940. That winter the squadrons swept with Wavell's Army as far as Agheila, annihilating a large Italian air force, and were then beaten back to their original positions. All the following summer they stayed there, while battles were fought in Greece and Crete, Syria, Iraq, and Persia. In November 1941 began the great desert drive which carried them once more to the gateway of Tripolitania at Agheila.

By early February 1942, the British forces had been driven back to a line running southwards from Gazala. The Kittyhawk fighters which had just come to the Desert Air Force made clear on February 14th the British intention to hold this line, by destroying at least twenty of a formation of some thirty-two dive-bombers and escorting fighters which were attempting to attack our troops at Acroma, and damaging the rest. Not a single Kittyhawk was lost and the only damage they received was a cannon-shell hole through the tail of one aircraft. The fight was carried down so low that some of the pilots could see our troops on the ground throwing their hats into the air. This victory was won by two of the most famous squadrons of the Desert, one of the Royal Australian Air Force, and one the "Shark" squadron of the R.A.F.—so called because they had painted the noses of their aircraft to resemble the jaws of sharks. Several of the pilots of this great squadron were men from the Dominions.

From that moment onwards the Desert Air Force, under the command of Air Vice-Marshal afterwards Air Marshal Sir Arthur Coningham, K.C.B., D.S.O., M.C., D.F.C., A.F.C., could settle down to a static period of some three months on the airfields around Gambut.

There are several rivals to the claim of being the dustiest place in the Western Desert, but in any list Gambut ranks high. About 30 miles east along the coast road from Tobruk there is a battered roadhouse by the side of which a rough track turns off to the south and within a mile zigzags up the side of the escarpment. At the top it reaches a wide plateau of which the only permanent features are a small stone blockhouse and a rough stone wall, built for heaven knows what purpose, beyond which lies a vast scraped landing ground littered around the edges with tents, trucks, gunpits and big piles of crashed German and Italian aircraft. The tracks that edge this landing ground have been cut up by traffic into a foot or more of fine dust which billows in a great cloud when even a solitary car passes that way; the wake of half a dozen aircraft taking off, as they do at short intervals, is a yellow blinding fog. That is Gambut.

The track meanders on farther to the south, and soon zigzags up a second escarpment on top of which it crosses the desert railway and the wide, bumpy Trigh Capuzzo. Beyond lies another vast landing ground, some more tents, guns, trucks, some more aircraft. That is Gasr el Arid.

On top of both these escarpments other tracks wander off in many directions, arriving now and then at other satellite landing grounds, each with its complement of tents, guns, trucks and aircraft, for a distance of 15 miles or more. Cap the whole thing with a burnished dome of sky, blow across it periodically a hot wind from the south laden with dust storms, mix the available water with equal parts of chlorine and mud, fill the tents with thousands of cheerful young men in khaki shirts and shorts (and with several million flies) and you have the home of the Desert Air Forces, both fighter and bomber, in the spring of 1942.

There was plenty of fighting to do even though this was a static period. The Luftwaffe was raiding in strength against Tobruk and the railheads at Capuzzo and Mischiefa, so that almost every day there was a combat.

Almost every day there were air attacks on the enemy on the ground. Almost every day there were losses, as when on April 11th seven Tomahawks flew straight at a formation of 30 enemy aircraft and lost five of their number, but not before destroying three of the enemy. Almost every day there were victories, though few as complete as that of May 12th when a formation

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led by four Beaufighters and escorted by eight long-range Kittyhawks intercepted the enemy air-supply route between Crete and Derna. About 50 miles out to sea they sighted 20 Ju.52s escorted by Messerschmitts. The Junkers were evidently full of troops, for a multitude of tommy-guns were pushed through the windows to open fire as the Beaufighters led the first beam attack, the Kittyhawks taking care of the escort. The fight lasted for 19 minutes and ranged over a distance of 40 miles. The Kittyhawks, soon disposing of the Messerschmitts, came down to join in the attack on the troop-carriers. One after another the Junkers aircraft fell in flames into the sea and burnt out on top of the water, all save one which glided gently down and sank beneath the surface. Some of the troops jumped in panic without parachutes to an instant death before their aircraft touched down; some struggled out from the surface and fell into patches of burning oil.

When Derna was in sight the Beaufighter leader could see only two Junkers, straggling for the coast. Behind him a line of aircraft and patches of oil burning on the surface of the sea seemed to stretch almost to the horizon, looking at a quick glance, he said, like a convoy of ships in line astern. Only those aircraft which had actually been seen to strike the sea were claimed as victories, but even so the score was impressive. The Kittyhawks destroyed 10 Ju.52s and two Messerschmitts. The Beaufighters destroyed three Ju.52s and probably two more. Our loss was one Beaufighter in the first beam attack.

Not by day only, but by night there was fighting to do. On every moon enemy bombers attacked the landing grounds in the Gambut area, the port of Tobruk or the railhead at Capuzzo. The A.A. barrages were magnificent, particularly at Tobruk and Gambut where streams of red tracer shells climbed the laborious air to the persistent crash of the heavier guns; sometimes through all this fantastic pattern streaked the small white-tracer jet of the rear guns of one of the German bombers, the gunner not wanting courage as he tried with little success to destroy our fighters on the ground. A squadron of Hurricanes was trained to combat the night raiders over the desert, guided only by the direction of the flak and the keenness of the pilots' eyes under admittedly a very bright moon. This same squadron also became freelances of the night against enemy camps and transport. They took off singly or in pairs and searched the wadis and roads for the enemy.

Every day without exception there was work for the reconnaissance squadrons, Marylands and Hurricanes, which penetrated the farther or the nearer enemy positions to report by photograph and by eye what moves were made. Equally there was the continual task of reconnaissance over the sea, the task that never ended, some of it carried out from the desert, some from Malta.

This constant offensive fighting and reconnaissance was particularly necessary in the first few weeks during which the squadrons were around Gambut, because of the poor state into which the aircraft had fallen. Aircraft and crews that should have filled the gaps created by three months of advance and retreat were being diverted to the even more clamant needs of the Far East. Many of the aircraft that remained were sadly in need of overhaul, of spare parts, of rest; only the pilots seemed not to tire.

In the early days of March the serviceability, which means the actual fighting strength at that moment of the squadrons, was so low that scarcely one complete fighter wing could be mustered in the desert. Serviceable aircraft had to fly all the harder to hide this weakness from the enemy. Then it rained so heavily that for a short time even the serviceable aircraft could get into the air only with difficulty. A German reconnaissance aircraft came over that morning, skirting the white puffs of the A.A. shells high above the escarpment. Soon there were reports from the forward positions that a force of 50 plus enemy fighters and bombers was heading towards Gambut. A ground controller tried a quick bluff. Into the radio telephone he gave a curt order to scramble three squadrons—to get them into the air, that is, to await radio orders. Two minutes later he ordered another two squadrons to scramble. In reality not a single fighter could get off the ground in time, but the whole enemy formation turned round and went home without even sighting the target. Thus we had proof that the Germans were listening to the radio control of our fighter squadrons.

Behind this screen of constant endeavour the Desert Air Force was not merely waiting for reinforcement in order to renew full-scale assault, but was perfecting new technique. All the faults of the winter fighting were carefully examined and the remedies sought. The system

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The Luftwaffe scrambles as Bostons of the S.A.A.F. surprise a Martuba airfield. The light bombers maintained a constant offensive against these forward landing grounds.

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of liaison between Army and Air Force was reorganised and tightened, and the practice of keeping squadrons waiting for call from the Army was discontinued.

A fighter wing was set aside to specialise in the task of protecting the light bombers, fighter pilots and bomber crews holding frequent conference to evolve the best tactics. Those hard-fighting weeks of experiment with the Bostons and the Kittyhawks were later to change the whole shape of the desert war.

The other big development was that of the fighter-bomber. More has been argued on the subject of dive-bombing than on probably any other aspect of the air war. The German Junkers 87, the Stuka with its demoralising dive, swept through Europe in support of the Wehrmacht. It was one of the first weapons of the Luftwaffe to be shipped to North Africa when British troops stood opposite Agheila for the first time. The troops who were subjected to it frankly detested it. Nevertheless, against targets of reasonable dispersal in the desert the Stuka was a failure. That is not to say that the Stukas did no damage; of course they did. But it was not commensurate with the losses they suffered. For the Stuka in flight is almost defenceless, needing the strongest fighter cover which even so never debarred the desert fighters from the satisfaction of a "Stuka party."

"The A.A. barrages were magnificent." The enemy attacks a fighter landing ground. Flares silhouette lorries, a caravan trailer, radio masts. Red tracer shells climb slowly up and flak peppers the night sky. The photographer is crouched in a sand-hole.

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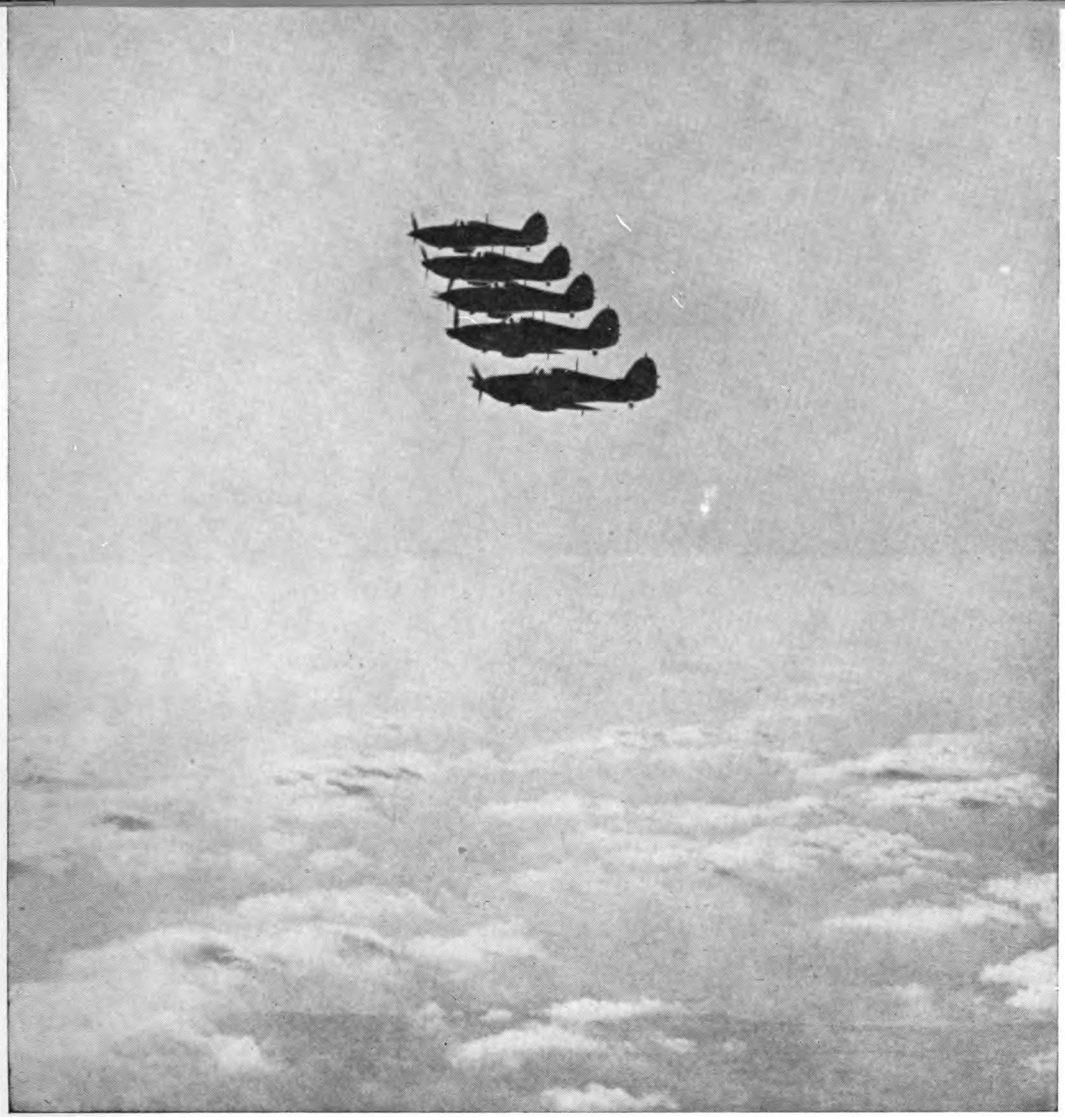

The bright desert moon, the direction of the flak and the pilots' own keen eyes guided the first Hurricane night fighters.

The Air Force of the desert never had a dive-bomber, nor wished for one. Instead it developed a fighter-bomber. During the winter a squadron of Hurricanes was fitted with some small bombs and the first experiments were made with considerable success. During this period at Gambut they were re-equipped with two larger bombs. Then the experiment was applied to the Kittyhawks, each of which was found to be able to carry a single bomb of heavier weight still. Not until the battles of the summer were the squadrons to discover how effective was this new weapon—this fighter-bomber that could protect itself, could aim as accurately as any dive-bomber, could protect heavier bombers if necessary and could answer an army call for support more quickly than any bomber in the world. Many of the fighter-bomber pilots dropped their first bombs when they were actually called into urgent action.

When war broke out in the Middle East the only night bombers available were elderly Bombays, painfully slow aircraft with fixed under-carriages, which nevertheless managed to reach

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Benghazi, beyond their maximum range, by refuelling themselves in flight from 40 four-gallon cans of petrol stowed inside the fuselage and tipped into the tanks through a funnel as a motor car is fuelled. They were soon replaced by the first Wellington bombers to reach Egypt, and by the spring of 1942 there was a respectable force of night bombers gathered on airfields around the Suez Canal zone, with advanced landing grounds for refuelling in the desert.

Sometimes they struck northwards over the Mediterranean at targets in Greece and Crete, but their chief task, then as always, so it seemed, was to batter Benghazi. They did this raid so often in a climate where bad weather rarely interferes with night flying that they nicknamed it the "mail run." Yet it was no easy flight. In distance it was roughly the equivalent of bombing Munich from Norfolk. The route was not splattered with guns and searchlights, true, but on the other hand a crew had to crash-land only 50 miles inland on the desert to be faced with the torments, often mortal, of thirst and heat. And the defences of Benghazi itself were fierce. More than all the dangers, though, the chief menace of the mail run was its inevitability, night after night, like a rheumatic twinge. One of the squadrons wrote a song about it, the *Mail-Run Song* which ran (slightly bowdlerised) to the tune of *Clementine*:—

Down the Flights each ruddy morning
Sitting waiting for a clue,
Same old notice on the Flight board,
Maximum effort—guess where to.

Chorus:
Seventy squadron, seventy squadron,
Though we say it with a sigh,
We must do the ruddy mail run
Every night until we die.

"Have you lost us, navigator?
Come up here and have a look.
Someone's shot our starboard wing off."
"We're all right then, that's Tobruk."
(a garrison naturally quick on the trigger
at that time, particularly at night)
Oh to be in Piccadilly
Selling matches by the score,
Then we should not have to do the
Blessed mail run any more

Chorus:
Seventy squadron, seventy squadron, etc.

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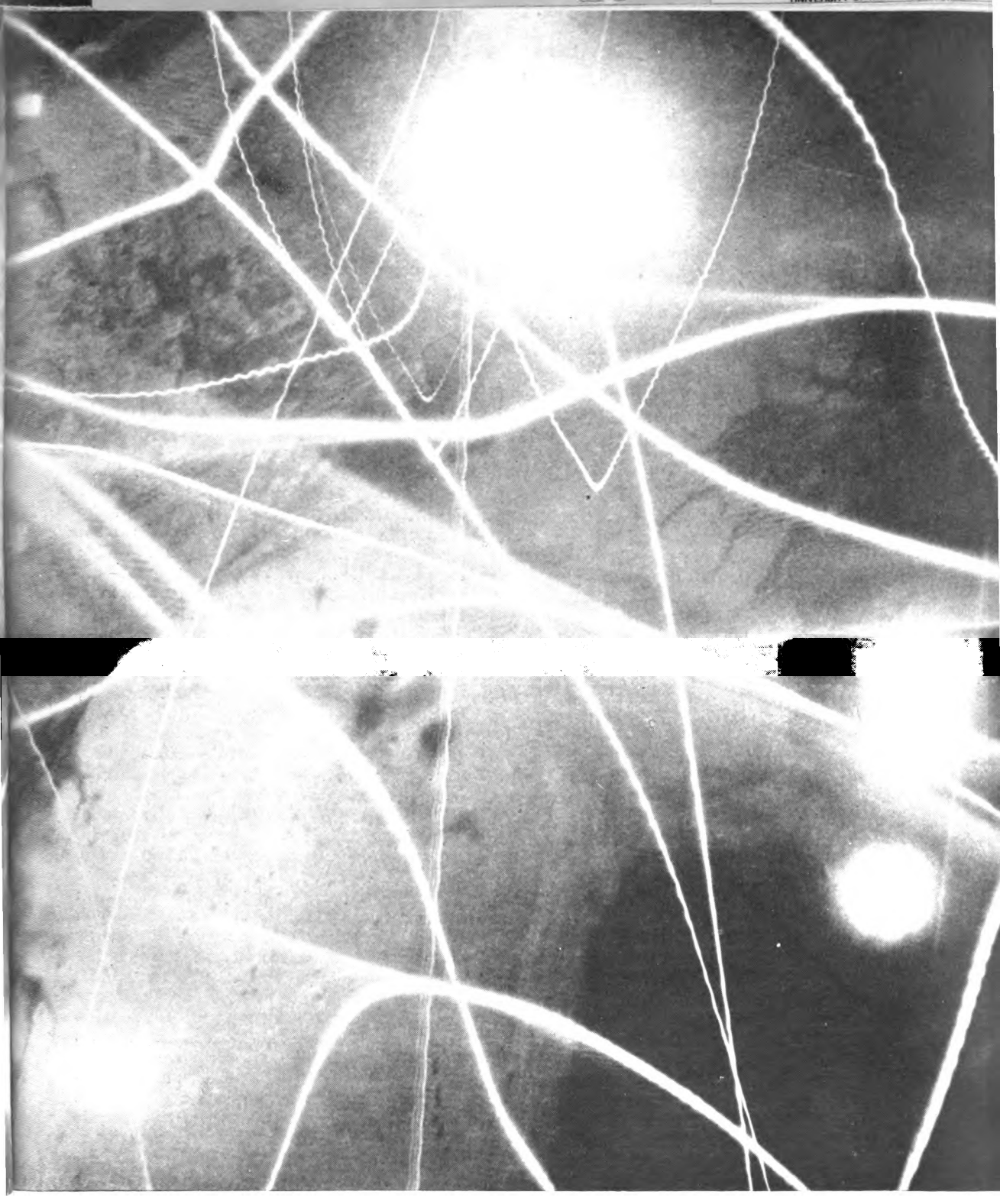

The mail run brings a heavy post. The bomber crews cannot hear the A.A. barrage; they only see it — the small winking gun-flashes, the larger explosions of the bombs, with sometimes a deepening glow, the multi-coloured tracers and scarlet flaming-onions drifting slowly upwards. Benghazi, chief port of the Axis, was battered night after night for many months.

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On the nights when they were not flying, the crews sat around in their messes with glasses of thin local beer and sang the mail-run song with an intensity of feeling that only desert life can lend to the voice. "We must do the ruddy mail run every night until we die." A good many of them did. But the hazards they took and the fatigue they endured had already, by that time, made Benghazi of considerably less value to the enemy as a supply base.

In the spring of 1942 the night-bomber force was made more mobile and moved up into the Western Desert from the base stations in the Canal zone. The advantages of placing the whole ground organisation of the bombers on wheels are apparent. The nearer to their targets the bombers can start, the less petrol they need and the more bombs they can carry. The difficulties of the undertaking were also apparent. After long experience the desert fighter and light-bomber force had been so organised that it could move forwards or backwards at a speed of 100 miles a day if necessary without the aircraft being grounded for a single minute. Now the same thing was achieved with the medium and heavy bombers in spite of far more complications.

Think of a man and his wife who decided to travel from London to Southend on August Bank Holiday in peace time and the transport difficulties they met; then think of a man and his wife with a family of 10 children attempting the same thing. That is a rough comparison of the relative difficulties of moving fighters and bombers about over the desert.

The crux of the whole bomber problem was to carry backwards and forwards over the roughest surface a great weight of bombs and petrol. For one medium bomber to make a raid on, say, Benghazi, there had to be something more than 4,000 lb. of bombs and 2¼ tons of petrol available at its airfield. Each heavy bomber needed up to 9,000 lb. of bombs and about five tons of petrol. All that had to be carted on trucks, as well as the motor fuel, the tents, rations, water, men, kit—the thousand things essential in a bare desert.

It was done. The night-bomber force was placed on wheels without interfering with the nightly strength of bombing. The mail run to Benghazi was made on 23 nights in March, 24 in April, 21 nights in May, and throughout the period there were attacks on the northern targets in Greece and Crete and later on those of the enemy airfields in the desert itself. But Benghazi, through which port the enemy was rapidly accumulating new strength, remained the chief target.

Night after night the Wellingtons throbbed through the searchlights and A.A. fire, the bomb-aimers crouched on their stomachs against the perspex of the nose, the pilots turning this way and that in evasive action, the gunners searching the bright moonlight of the sky for night fighters. From above, the harbour itself looks almost too small and insignificant for all that trouble. The moles and the inner harbour form a rough box-shape with the Cathedral mole sticking down in the centre. It is quite easy under an African moon to discern detail, even the little projections nicknamed George, Harry and Johnny, which once were ships with such names as Maria Eugenia and Gloriastella, and now, as wrecks filled with concrete, had become the main unloading piers. From above it is not possible to hear the A.A. barrage but only to see it—the flashes of the heavy guns like light winking from the facets of a turning jewel, the multi-coloured streams of tracer hose-piping upwards apparently without plan, the scarlet flaming-onions drifting upwards in little linked groups as slowly as a child's balloon. It all seems, without the noise, too remote and pretty for actuality.

The bombing itself seems just as unreal. The slight bump in the aircraft as the bombs leave is almost unnoticed. It is difficult to pick out the flash of their explosion among the thousands of flashes below. Then suddenly there is a small red glow on the base of one of the moles, a deepening glow, a shadow of black smoke, perhaps a vivid green flash. It means that some dump of warlike material, manufactured in Germany under the threat of bombs, carted with great labour across Europe's congested railway system, loaded under more bombing into a ship at Naples and borne across the sea through the threat of bomb and torpedo, has been unloaded at Benghazi in vain. All that effort has ended in a deep-red glow and a streak of smoke. There is the reality.

Night after night it happened, until at mid-summer the experts who study photographs could say of Benghazi that there was scarcely a building which had not suffered to some extent, that beside the wrecks in the harbour the outer mole had been broken in three places, that some half of the warehouses had been so damaged

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that great piles of stores stood in the open, that the powerhouse was silent, the railway sidings littered with bent and twisted rails. But ships were still coming into the harbour, many of the supplies were still filtering through to the enemy armies of the desert, and the three wrecks—George, Harry and Johnny—were still there, still acting as unloading wharves. Their fate was reserved for later.

The attempts of the Luftwaffe to bomb our back areas in Egypt were intermittent, never very considerable and apparently based on no long-range plan. During the summer of 1941 there had been a number of night raids on supply and repair centres in Egypt which had had only one success of any importance, the destruction of an R.A.F. maintenance unit, although the poorer districts of Alexandria had been damaged from time to time and some civilians killed and injured.

There had been little raiding during the winter, but in the spring of 1942 it started again. Meanwhile an R.A.F. night-fighter squadron had been moved into the Nile Delta, the chief ambition of its crews being that the Germans should give them a chance to show the technique they had developed in the night skies of Britain. The squadron was commanded by Wing Commander G. H. Stainforth, A.F.C., famous in peace time for his Schneider Cup Victory. Wing Commander Stainforth, who was the oldest pilot flying on operations in the Middle East, was later killed in action in a night fighter.

On the night of March 2nd/3rd, about 35 German bombers attacked many parts of Egypt from Alexandria and Port Said down to the Suez area, doing some damage to one of our airfields which was heavily bombed and machine-gunned. It was a night of bright moonlight. A force of night fighters intercepted some of the raiders and shot down two Heinkels. This loss was insufficient to deter the enemy, and from time to time more bombing raids came over by night, directed principally at Alexandria. On the night of April 7/8th they were intercepted by night fighters and one pilot, Flight Lieutenant R. C. Fumerton, D.F.C., R.C.A.F., shot down two of them.

The big night was that of April 28/29th, when about 25 Ju.88s and He.111s attacked Alexandria. Three of our night fighters made interceptions. One of them again shot down two raiders in a single night, another probably destroyed a third, and another damaged a fourth. The A.A. gunners scored one destroyed. Twenty per cent. of the raiding force had been knocked out, and this ascendancy over the night raider was maintained from that time onwards, although there were still occasional raids, mostly on Alexandria.

Between March 2nd and the decisive battle which was to open in the Western Desert in November 1942, the night fighters shot down a total of 41 bombers over Egypt alone, and a number more over Malta. This was additional to the success of the Hurricanes which flew by night over the Western Desert.

4—To Keep the Squadrons Flying

BEHIND AN air force in battle there must be a large technical force on the ground. The bravest and finest pilot in the world is useless if his aircraft through some mechanical defect cannot leave the ground; or if, having been shot down in battle, there is none other into which he can step. The first problem in the Middle East, indeed, had been to provide the very elements of the force—aircraft, airmen, signals equipment, guns, split pins, nuts and bolts, all the three-quarters of a million separate items which must exist in order to keep an air force flying in the air. Even in a highly industrialised country like Britain, with aircraft and engineering industries of long experience and great skill, the problem took a wearisome time to solve. Imagine then the magnitude of it in Egypt, where no such industries existed, where machinery was often obsolete and always inadequate, where power is expensive to produce, and to which the shipping

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supply lines from Britain had then to travel all the 14,000 miles of the sea route round the Cape of Good Hope.

Nevertheless, by the spring of 1942, R.A.F., Middle East, possessed a vast and efficient maintenance and supply organisation, stretching from advance units in the Western Desert to factories in Persia, from the Mediterranean shores across the central jungles to West Africa. Something must be said of this organisation without which there would have been no air war in the Middle East at all.

There were two answers to the problem of how to build a big air force, expressed exactly in the very term "maintenance and supply." New material was supplied direct from the two major arsenals of Britain and America, the difficulties being in the main how to get it to Egypt. At the same time all the material that was actually in the Middle East was conserved and, after it had been in battle, repaired; here the task was to set up an organisation for salvaging it from the battlefield and for making good its damage at the most urgent speed.

The obvious way to supply fighter aircraft to the Middle East when we could still use airfields in Europe was to fly them from Britain across France, and then via Tunis and Malta to Mersa Matruh. The longest hops could just be managed on petrol endurance. The bombers could make the journey with fewer stops. In fact, before France collapsed, three Blenheims and six Hurricanes reached Egypt in this way. Then the route was closed. Long-range night bombers could still fly direct from Britain, refuelling at Malta, but not the fighters nor the short-range bombers.

Fortunately there existed the British Overseas Airways Corporation route first established by Imperial Airways in 1936, from West Africa across the jungle bush and desert to the Sudan and thence to Egypt. The R.A.F. quickly adopted it as a reinforcement route. A small town with a good harbour on the equatorial coast of West Africa was chosen as one terminus and the airfield there was enlarged with workshops for assembling reinforcement aircraft which arrived from Britain by sea. Then additional sites across Africa to Egypt were picked and landing grounds cleared from the bush at the necessary intervals, thousands of natives being employed at the task. Small ground parties of the R.A.F. were set down at these landing grounds; fuel and supplies were moved in. The first shipload of Hurricanes arrived in West Africa. They were assembled at the workshops, tested, and flown off to the East in a small aerial convoy led by a Blenheim which did all the navigation. They arrived in Egypt in time for the first desert campaign and proceeded to help knock an Italian air force out of the sky.

The pace of the route quickened. More airfields were built in West Africa, more workshops to assemble the aircraft. The men who staffed these great stations were many thousands of miles from the battles in which they fought as surely as if they actually squeezed a trigger; they had also some private enemies of their own, chiefly malaria in a climate of equatorial heat and damp. The pilots who flew the aircraft onwards across Africa, many of them experienced Polish pilots from Britain, had all those evils to fight as well as the hazards of the air route.

A large and dispersed reception organisation was created for the new supply aircraft which were soon arriving in the Middle East by three main routes—the West African air route, the direct air route from Britain via Malta, and the shipping route to the East African coast, which still brought some aircraft in their crates.

Thus the aircraft came; but aircraft in themselves were only a small part of the supply problem. A war in the air, a technicians' war, consumes an almost infinite variety of objects at a very great speed. Spare parts of aircraft, for instance, may arrive in their millions and still the consumption exhausts them. No matter how fast the supply of material flowed, the long sea and air journeys always involved tedious delay. Supply alone could never keep the squadrons in the air; there had also to be maintenance.

The theory of maintenance of an aircraft in battle is simple. When it is shot down or damaged or when the stress of flight has worn out part of its mechanism, it must be brought back to base and repaired. Only a small organisation existed in peace-time Egypt for this necessity. There were a few ill-equipped ground units, whose task was to retrieve lame aircraft: they were known as repair and salvage units, or briefly R.S.U.s. Each aircraft has its own ground crew of mechanics, each squadron its engineering staff, and they themselves with the

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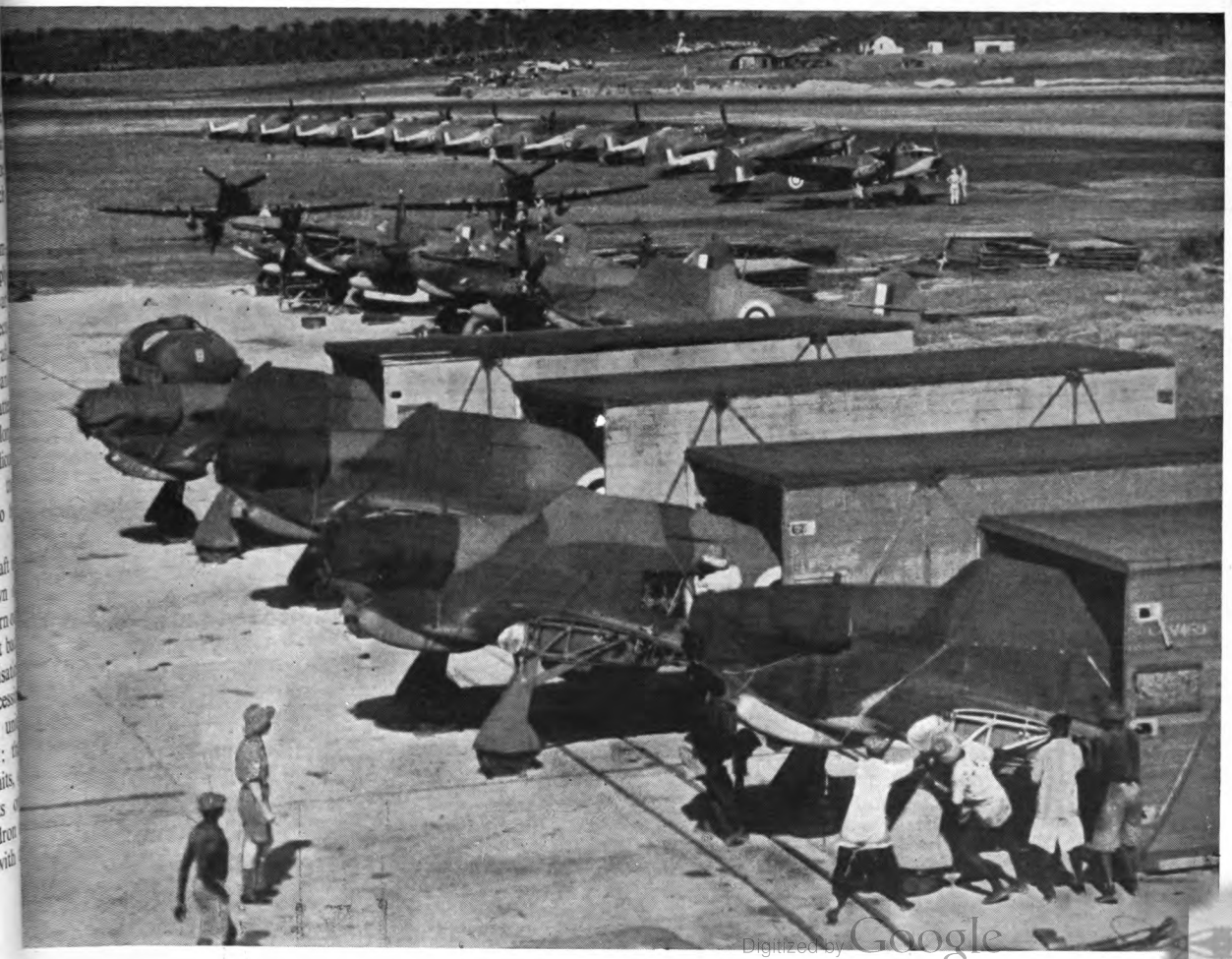
Airfields built in the jungle and desert of West Africa were the main reinforcement route. (1) The first tree falls. (2) The tropical sun brings its problems. (3) Crated Hurricanes, brought from Britain by sea, are unpacked by local workers and assembled for the flight across Africa. Two Blenheims stand by to lead the convoys.



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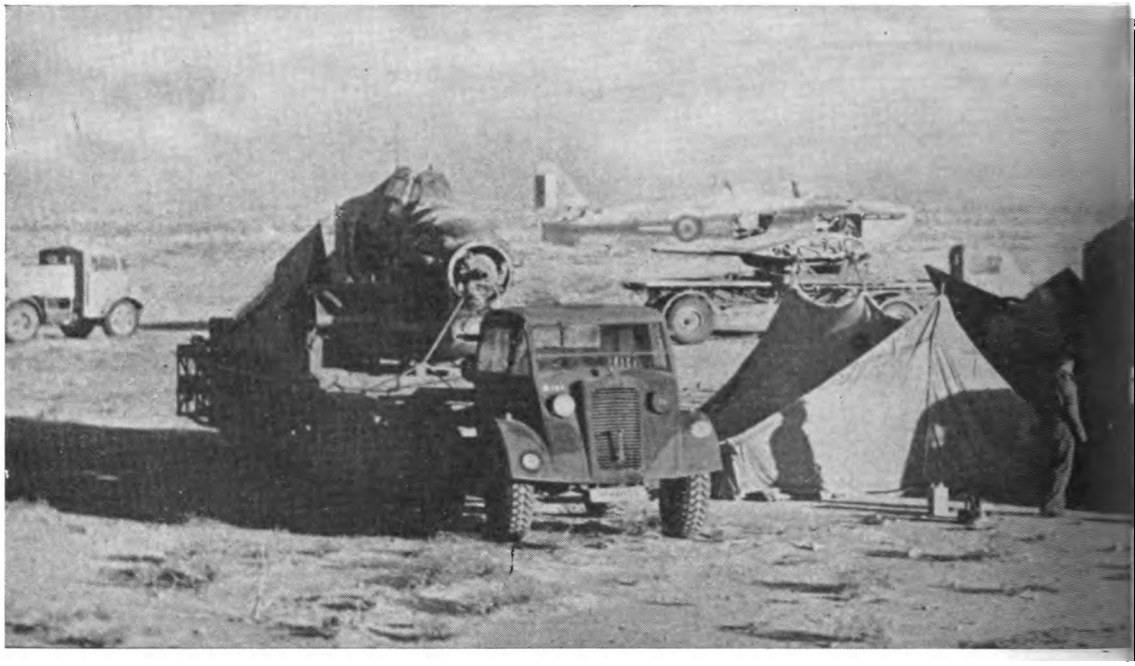

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When an aircraft is shot down or has crash-landed, these small parties set off to find it, guided perhaps by a rough indication of the position from the pilot who has escaped or by a sighting report from another aircraft. They bump their way for days over the desert by compass bearing and map. They carry their own hard rations and water, camp at night by their vehicles, push on again the following day. Convoys of big trucks and cranes have picked up wrecks from under the enemy's nose on many occasions, once, with the help of infantrymen, threading their way through a front-line mine-field and laying a trail of white tape to guide them back again with a repairable Hurricane.

During one 17-week period of hard fighting in the desert more than 1,000 damaged aircraft of all types were scattered over some 100,000 square miles of desert. A few of them were never found, perhaps never will be found. But during that period more than 800 of them were brought back to the various base depots, repaired and made operationally serviceable and flown back into the war. The maintenance organisation therefore in that one period created from wrecks and added to our air strength a force considerably stronger, even numerically, than the whole of the air force available in the Middle East when Italy came into the war.

That could not be done only by the salvage stalwarts in the field. There had also to be a large base organisation for the actual work of repair. This too was inadequate when war began. There were two big bases in Egypt, one of which had been destroyed by bombing.

Already, however, a big scheme was being developed to create many more maintenance units, as these repair depots are called, and to disperse them widely with the greatest possible

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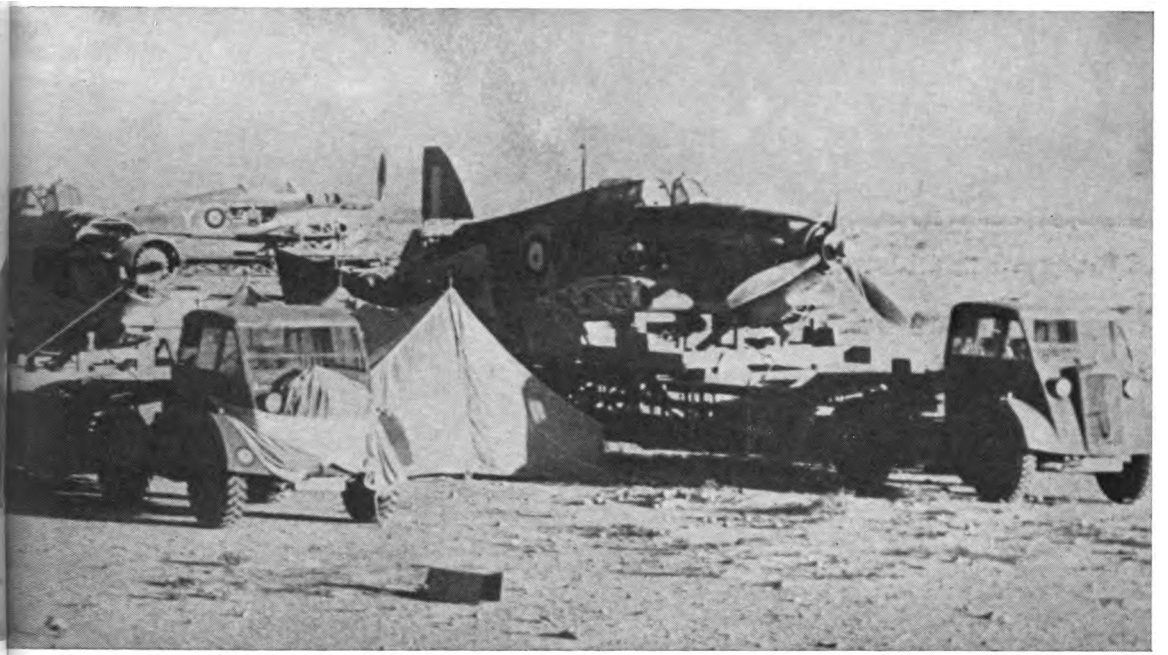

A repair and salvage convoy breaks camp at dawn. Equipped with mobile cranes and articulated trucks, these units ranged the desert to bring back damaged aircraft. During one 17-week period of hard fighting 800 were brought in, repaired and flown back into the battle.

protection against air attack. Everybody knows the story of the tens of thousands of Egyptians who toiled in ancient days to hew blocks of stone from the Mokattam hills on one side of the Nile, to transport them across several miles and build them into the pyramids on the other side. In fact those Egyptians left not one set of monuments but two—the pyramids themselves, and in the Mokattam hills a great range of artificial caves from which the stone had been taken. Into some of these caves—bombproof warehouses and workshops ready to hand—the R.A.F. moved one of the many maintenance units which were created in 1941.

Only two of the caves were open at that time, for during the centuries there had been falls of rock and rubble which had turned precipitous cliffs into gentle slopes. So once again, after a lapse of thousands of years, a crowd of Egyptian labourers began work on the Mokattam hills, a happier crowd this time of men working for wages, not an army of slaves. Actual methods of work had changed very little. The white-robed men tackled the hillsides with small picks and shovels. They piled the rubble into old wicker baskets on the end of ropes and tipped it farther down the hill. Children drove panniered donkeys to lift away the heavier pieces. Stonecutters came with tiny picks and wedges and split with the precision of an immemorial craftsmanship great boulders that stood in the way. It looked like a task that would take years; actually in a few months the whole hillside had been gnawed out, the debris had been built into a wide, white approach road up the valley, and the caves stood revealed and cleared. Only two relics were found of the toil of past centuries—in one cave a human skull and in another a large block of squared stone propped at one end on a roller as though in some remote dynasty the workmen had left their work half finished at dusk and for an unexplained reason had never returned.

The caves were whitewashed, equipped with electric light and power, and their floors concreted. At first they were used only as warehouses for every kind of material from photographic paper to bombs, but later some of them were turned into engineering shops. To walk round them now is to walk round a large factory.

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Stacked in the sunshine outside are hundreds of oily, sandy aircraft engines straight from the desert. Inside the caves are rows of work benches, bay after bay, where the engines are stripped, checked, repaired and reassembled. In the largest cave of all, domed like a rough cathedral, the finished engines, crated, inspected and ready once more to fly, await in massive numbers the demands of the battle.

Dispersal was another method by which the new maintenance units were built away from destruction by bombs. Some R.A.F. technical officers wandered through one of the poorer districts of Cairo, found an empty timber yard and converted it into an aircraft-engine repair shop, the first of many engineering shops which are now scattered throughout the city. These parts of Cairo are far different from the quarters which Europeans usually see. Tall white modern buildings, great blocks of flats, elegant shops, big mansions and villas line those streets which in season the flamboyant trees clothe in flames of scarlet and the jacarandas in deepest blue. But here the bumpy streets are crowded warrens, higgledy-piggledy with thousands of tiny dark shops open to the pavement where craftsmen tap and men sit to drink interminable coffee and to barter. Women in black robes crowd to the communal well from which a patriarch doles them out water to balance in cans on their shoulders and carry back through twisting alleys to their tiny homes. Children run shouting everywhere, the merchants jostle each other on small flat carts drawn by donkeys, a countryman rides through on a camel, its panniers laden with vegetables. Over the housetops peer the tall bent masts of the feluccas, heavily laden and beating slowly against the flow of the Nile. These are the districts where the real people of Cairo live, where life is vivid and extremely cheerful, always clamant and seldom quite imperceptible to the nose.

The R.A.F. has now moved a whole little industry into these quarters. A door from one crowded street opens on to the hum of lathes of an aircraft-engine repair shop. Gun turrets detached from their aircraft and looking like monstrous diving-helmets are carted through these streets into a large shop where they are refurbished, their guns repaired and tested. The motor trucks which carry the squadrons and their tents across the desert, the sand-plastered motor-bicycles of the dispatch-riders, the signals vans, the cookhouse trailers come wearily back from the battle to be repaired, garnished, re-camouflaged in a yard in these quarters. That is another side of the creation of the maintenance organisation upon which the whole air war in the Middle East depends.

Take yet another. In the summer of 1941 a hangar on an existing airfield was handed over to five engineers of British Overseas Airways Corporation, and they started to scour the back streets of Cairo to buy hammers, pliers, hack-saws and such elementary tools, with which to found a unit for the repair of damaged air-frames (the body of the aircraft as distinct from its engines). Within a year the unit had grown to many hangars, all crowded with aircraft needing repair, ranging in size from the smallest communication machine to the largest Liberator bomber. And more than 1,000 aircraft had been rebuilt and sent back into the fight.

The main task, of course, was to keep the squadrons of the Middle East flying, and it is worth examining some of the feats of craftsmanship, the exploits of the work bench, by which it has been accomplished. One of the most important was the setting up in various places throughout the organisation of chromium-plating shops. Many metal engine parts came in after long use so worn that in Britain they would be put to scrap and new ones substituted; but new parts in Egypt mean valuable shipping space and long months of delivery time. So the old parts are built up again in the plating shops and then ground down to the correct size. The process is tedious, but each time it gives one more aircraft back to the air, and the plating shops alone have vastly increased our air strength.

So have the shops where bent airscrews, tangled into unbelievable shapes, are heated and straightened until they are perfect again. The moment at which the airscrew was bent was probably vital and dramatic. A fighter pilot coming out of combat, his aircraft riddled with cannon fire, sought some smooth, flat place where he could crash wheels up; his airscrew made first contact with the sand and the rock, buckling and twisting as he skidded along the ground and then jumped from the cockpit to run for cover behind a pile of stones as enemy fighters dived to strafe him. That was the moment of damage. The long hours of repair are not in the least dramatic, but they require patience and infinite precision.

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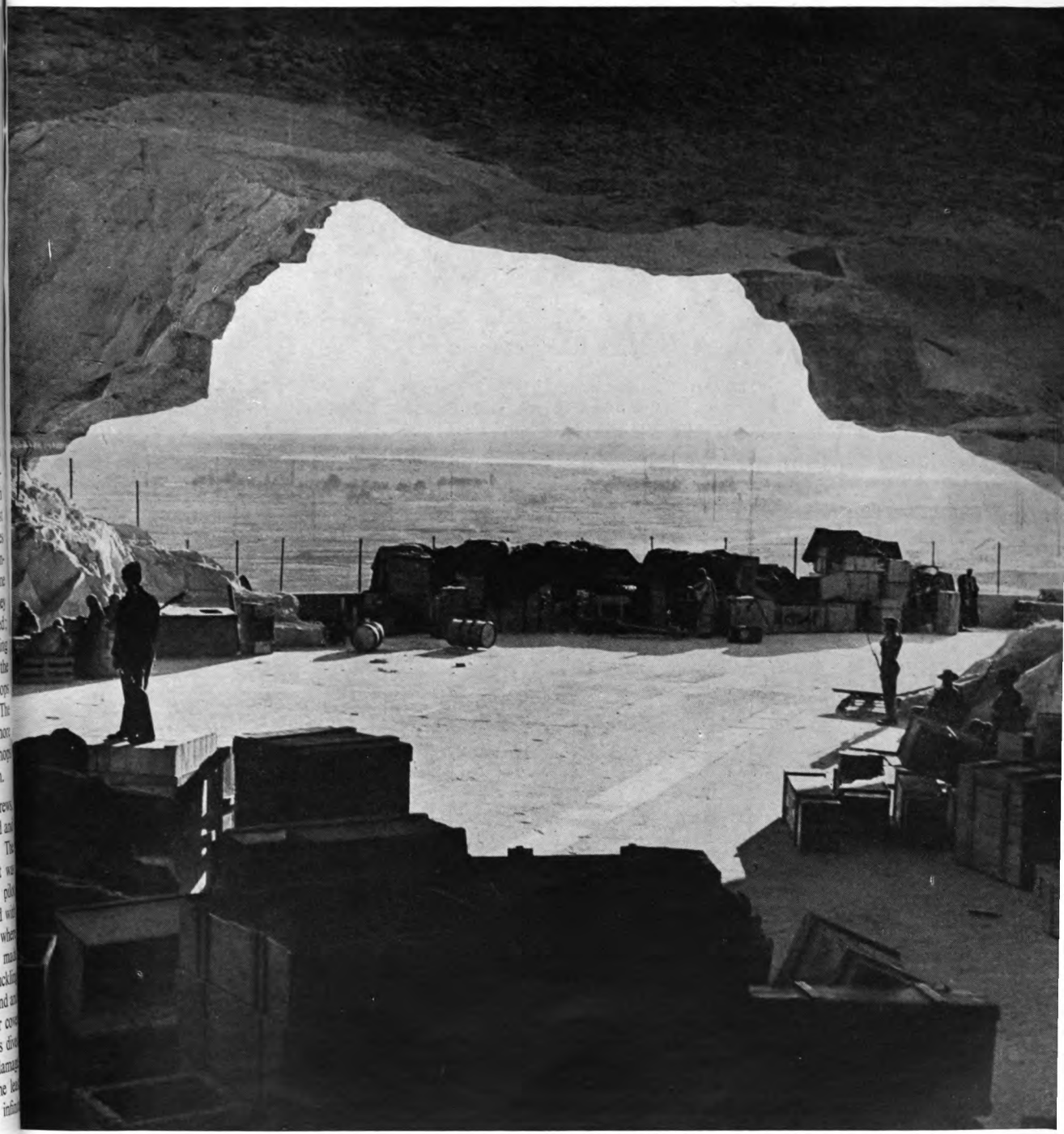

Huge bombproof stores and repair shops were made from the caves in the Mokattam hills, south of Cairo. The Pyramids, seen faintly in the distance across the Nile, were built of rock hewn from these caves.

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On the nights when they were not flying, the crews sat around in their messes with glasses of thin local beer and sang the mail-run song with an intensity of feeling that only desert life can lend to the voice. "We must do the ruddy mail run every night until we die." A good many of them did. But the hazards they took and the fatigue they endured had already, by that time, made Benghazi of considerably less value to the enemy as a supply base.

In the spring of 1942 the night-bomber force was made more mobile and moved up into the Western Desert from the base stations in the Canal zone. The advantages of placing the whole ground organisation of the bombers on wheels are apparent. The nearer to their targets the bombers can start, the less petrol they need and the more bombs they can carry. The difficulties of the undertaking were also apparent. After long experience the desert fighter and light-bomber force had been so organised that it could move forwards or backwards at a speed of 100 miles a day if necessary without the aircraft being grounded for a single minute. Now the same thing was achieved with the medium and heavy bombers in spite of far more complications.

Think of a man and his wife who decided to travel from London to Southend on August Bank Holiday in peace time and the transport difficulties they met; then think of a man and his wife with a family of 10 children attempting the same thing. That is a rough comparison of the relative difficulties of moving fighters and bombers about over the desert.

The crux of the whole bomber problem was to carry backwards and forwards over the roughest surface a great weight of bombs and petrol. For one medium bomber to make a raid on, say, Benghazi, there had to be something more than 4,000 lb. of bombs and 2¼ tons of petrol available at its airfield. Each heavy bomber needed up to 9,000 lb. of bombs and about five tons of petrol. All that had to be carted on trucks, as well as the motor fuel, the tents, rations, water, men, kit—the thousand things essential in a bare desert.

It was done. The night-bomber force was placed on wheels without interfering with the nightly strength of bombing. The mail run to Benghazi was made on 23 nights in March, 24 in April, 21 nights in May, and throughout the period there were attacks on the northern targets in Greece and Crete and later on those of the enemy airfields in the desert itself. But Benghazi, through which port the enemy was rapidly accumulating new strength, remained the chief target.

Night after night the Wellingtons throbbed through the searchlights and A.A. fire, the bomb-aimers crouched on their stomachs against the perspex of the nose, the pilots turning this way and that in evasive action, the gunners searching the bright moonlight of the sky for night fighters. From above, the harbour itself looks almost too small and insignificant for all that trouble. The moles and the inner harbour form a rough box-shape with the Cathedral mole sticking down in the centre. It is quite easy under an African moon to discern detail, even the little projections nicknamed George, Harry and Johnny, which once were ships with such names as Maria Eugenia and Gloriastella, and now, as wrecks filled with concrete, had become the main unloading piers. From above it is not possible to hear the A.A. barrage but only to see it—the flashes of the heavy guns like light winking from the facets of a turning jewel, the multi-coloured streams of tracer hose-piping upwards apparently without plan, the scarlet flaming-onions drifting upwards in little linked groups as slowly as a child's balloon. It all seems, without the noise, too remote and pretty for actuality.

The bombing itself seems just as unreal. The slight bump in the aircraft as the bombs leave is almost unnoticed. It is difficult to pick out the flash of their explosion among the thousands of flashes below. Then suddenly there is a small red glow on the base of one of the moles, a deepening glow, a shadow of black smoke, perhaps a vivid green flash. It means that some dump of warlike material, manufactured in Germany under the threat of bombs, carted with great labour across Europe's congested railway system, loaded under more bombing into a ship at Naples and borne across the sea through the threat of bomb and torpedo, has been unloaded at Benghazi in vain. All that effort has ended in a deep-red glow and a streak of smoke. There is the reality.

Night after night it happened, until at mid-summer the experts who study photographs could say of Benghazi that there was scarcely a building which had not suffered to some extent, that beside the wrecks in the harbour the outer mole had been broken in three places, that some half of the warehouses had been so damaged

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that great piles of stores stood in the open, that the powerhouse was silent, the railway sidings littered with bent and twisted rails. But ships were still coming into the harbour, many of the supplies were still filtering through to the enemy armies of the desert, and the three wrecks—George, Harry and Johnny—were still there, still acting as unloading wharves. Their fate was reserved for later.

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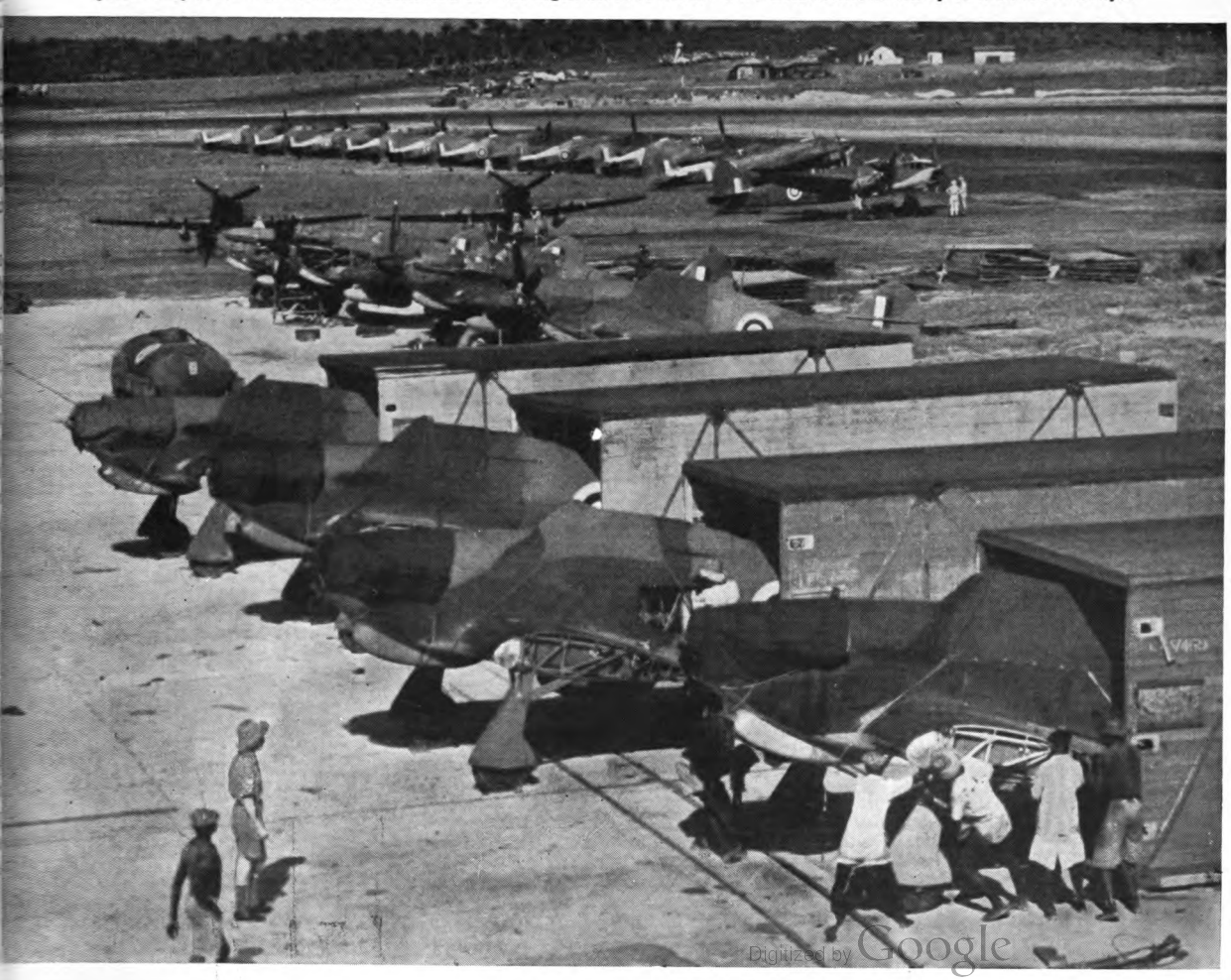

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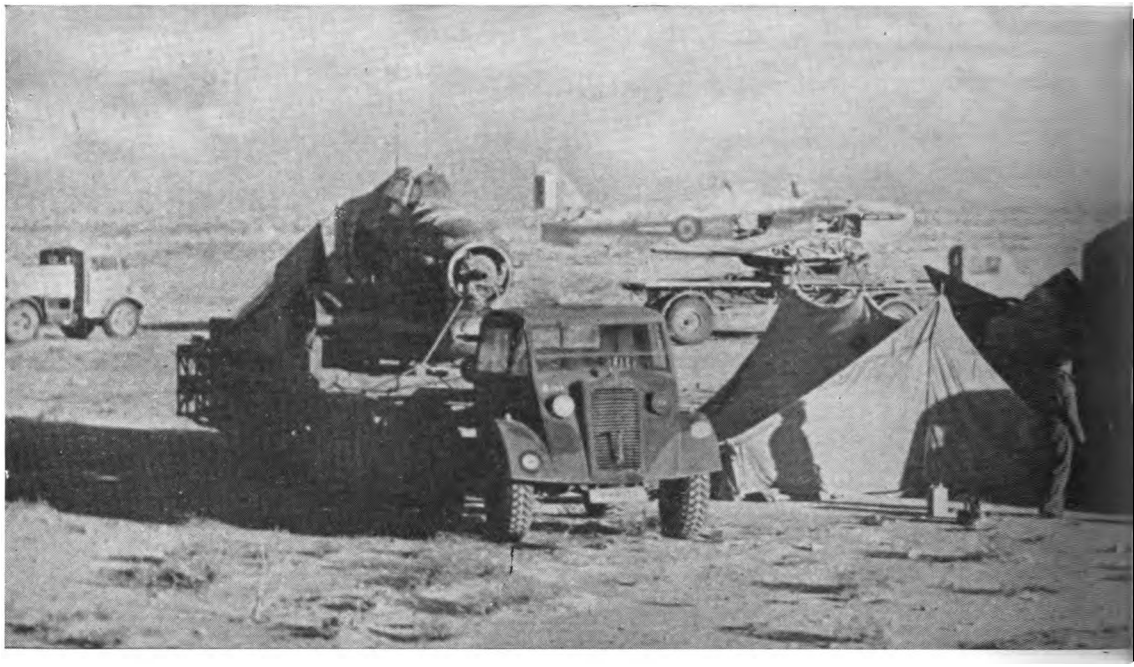

scantiest equipment perform daily feats of solid, selfless, hard work, and often small miracles of repair, on the airfields. But there are obviously limits to what they can do, and anything like a major repair must be taken back to a well-equipped depot behind the battle zone. Getting it back is the task of the R.S.U.s. They work in parties of a few men, usually under the command of an N.C.O., each party being equipped with a mobile crane for lifting aircraft and some big articulated trucks upon which to place them.

When an aircraft is shot down or has crash-landed, these small parties set off to find it, guided perhaps by a rough indication of the position from the pilot who has escaped or by a sighting report from another aircraft. They bump their way for days over the desert by compass bearing and map. They carry their own hard rations and water, camp at night by their vehicles, push on again the following day. Convoys of big trucks and cranes have picked up wrecks from under the enemy's nose on many occasions, once, with the help of infantrymen, threading their way through a front-line mine-field and laying a trail of white tape to guide them back again with a repairable Hurricane.

During one 17-week period of hard fighting in the desert more than 1,000 damaged aircraft of all types were scattered over some 100,000 square miles of desert. A few of them were never found, perhaps never will be found. But during that period more than 800 of them were brought back to the various base depots, repaired and made operationally serviceable and flown back into the war. The maintenance organisation therefore in that one period created from wrecks and added to our air strength a force considerably stronger, even numerically, than the whole of the air force available in the Middle East when Italy came into the war.

That could not be done only by the salvage stalwarts in the field. There had also to be a large base organisation for the actual work of repair. This too was inadequate when war began. There were two big bases in Egypt, one of which had been destroyed by bombing.

Already, however, a big scheme was being developed to create many more maintenance units, as these repair depots are called, and to disperse them widely with the greatest possible

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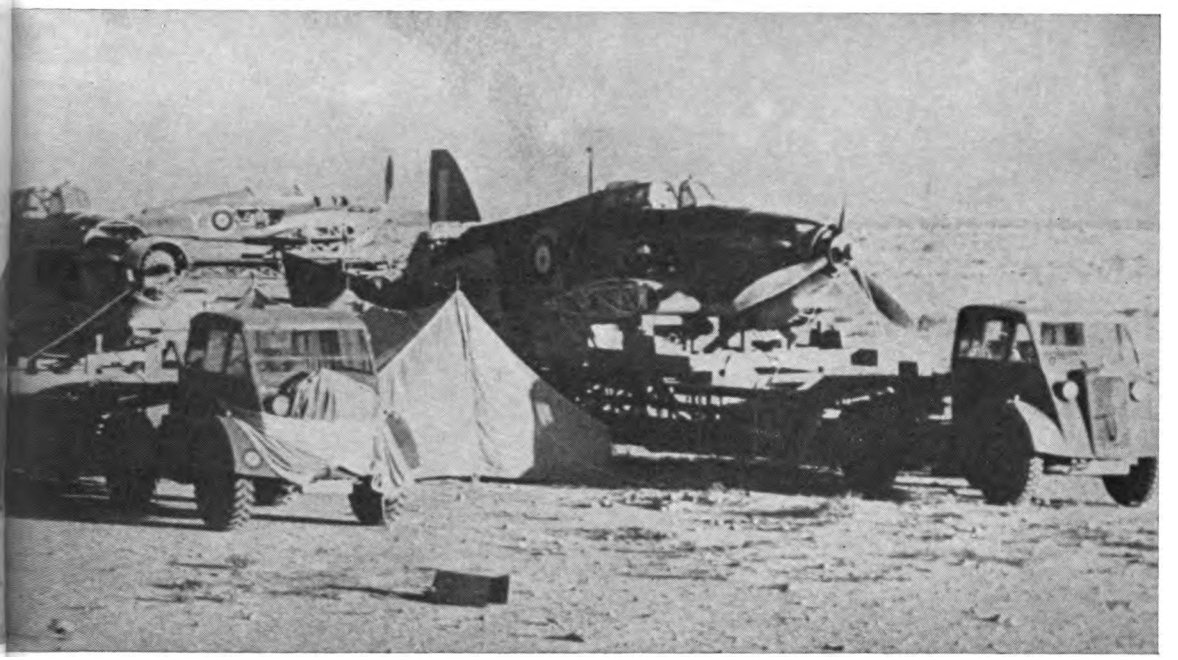

A repair and salvage convoy breaks camp at dawn. Equipped with mobile cranes and articulated trucks, these units ranged the desert to bring back damaged aircraft. During one 17-week period of hard fighting 800 were brought in, repaired and flown back into the battle.

protection against air attack. Everybody knows the story of the tens of thousands of Egyptians who toiled in ancient days to hew blocks of stone from the Mokattam hills on one side of the Nile, to transport them across several miles and build them into the pyramids on the other side. In fact those Egyptians left not one set of monuments but two—the pyramids themselves, and in the Mokattam hills a great range of artificial caves from which the stone had been taken. Into some of these caves—bombproof warehouses and workshops ready to hand—the R.A.F. moved one of the many maintenance units which were created in 1941.

Only two of the caves were open at that time, for during the centuries there had been falls of rock and rubble which had turned precipitous cliffs into gentle slopes. So once again, after a lapse of thousands of years, a crowd of Egyptian labourers began work on the Mokattam hills, a happier crowd this time of men working for wages, not an army of slaves. Actual methods of work had changed very little. The white-robed men tackled the hillsides with small picks and shovels. They piled the rubble into old wicker baskets on the end of ropes and tipped it farther down the hill. Children drove panniered donkeys to lift away the heavier pieces. Stonecutters came with tiny picks and wedges and split with the precision of an immemorial craftsmanship great boulders that stood in the way. It looked like a task that would take years; actually in a few months the whole hillside had been gnawed out, the debris had been built into a wide, white approach road up the valley, and the caves stood revealed and cleared. Only two relics were found of the toil of past centuries—in one cave a human skull and in another a large block of squared stone propped at one end on a roller as though in some remote dynasty the workmen had left their work half finished at dusk and for an unexplained reason had never returned.

The caves were whitewashed, equipped with electric light and power, and their floors concreted. At first they were used only as warehouses for every kind of material from photographic paper to bombs, but later some of them were turned into engineering shops. To walk round them now is to walk round a large factory.

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Stacked in the sunshine outside are hundreds of oily, sandy aircraft engines straight from the desert. Inside the caves are rows of work benches, bay after bay, where the engines are stripped, checked, repaired and reassembled. In the largest cave of all, domed like a rough cathedral, the finished engines, crated, inspected and ready once more to fly, await in massive numbers the demands of the battle.

Dispersal was another method by which the new maintenance units were built away from destruction by bombs. Some R.A.F. technical officers wandered through one of the poorer districts of Cairo, found an empty timber yard and converted it into an aircraft-engine repair shop, the first of many engineering shops which are now scattered throughout the city. These parts of Cairo are far different from the quarters which Europeans usually see. Tall white modern buildings, great blocks of flats, elegant shops, big mansions and villas line those streets which in season the flamboyant trees clothe in flames of scarlet and the jacarandas in deepest blue. But here the bumpy streets are crowded warrens, higgledy-piggledy with thousands of tiny dark shops open to the pavement where craftsmen tap and men sit to drink interminable coffee and to barter. Women in black robes crowd to the communal well from which a patriarch doles them out water to balance in cans on their shoulders and carry back through twisting alleys to their tiny homes. Children run shouting everywhere, the merchants jostle each other on small flat carts drawn by donkeys, a countryman rides through on a camel, its panniers laden with vegetables. Over the housetops peer the tall bent masts of the feluccas, heavily laden and beating slowly against the flow of the Nile. These are the districts where the real people of Cairo live, where life is vivid and extremely cheerful, always clamant and seldom quite imperceptible to the nose.

The R.A.F. has now moved a whole little industry into these quarters. A door from one crowded street opens on to the hum of lathes of an aircraft-engine repair shop. Gun turrets detached from their aircraft and looking like monstrous diving-helmets are carted through these streets into a large shop where they are refurbished, their guns repaired and tested. The motor trucks which carry the squadrons and their tents across the desert, the sand-plastered motor-bicycles of the dispatch-riders, the signals vans, the cookhouse trailers come wearily back from the battle to be repaired, garnished, recamouflaged in a yard in these quarters. That is another side of the creation of the maintenance organisation upon which the whole air war in the Middle East depends.

Take yet another. In the summer of 1941 a hangar on an existing airfield was handed over to five engineers of British Overseas Airways Corporation, and they started to scour the back streets of Cairo to buy hammers, pliers, hacksaws and such elementary tools, with which to found a unit for the repair of damaged airframes (the body of the aircraft as distinct from its engines). Within a year the unit had grown to many hangars, all crowded with aircraft needing repair, ranging in size from the smallest communication machine to the largest Liberator bomber. And more than 1,000 aircraft had been rebuilt and sent back into the fight.

The main task, of course, was to keep the squadrons of the Middle East flying, and it is worth examining some of the feats of craftsmanship, the exploits of the work bench, by which it has been accomplished. One of the most important was the setting up in various places throughout the organisation of chromium-plating shops. Many metal engine parts came in after long use so worn that in Britain they would be put to scrap and new ones substituted; but new parts in Egypt mean valuable shipping space and long months of delivery time. So the old parts are built up again in the plating shops and then ground down to the correct size. The process is tedious, but each time it gives one more aircraft back to the air, and the plating shops alone have vastly increased our air strength.

So have the shops where bent airscrews, tangled into unbelievable shapes, are heated and straightened until they are perfect again. The moment at which the airscrew was bent was probably vital and dramatic. A fighter pilot coming out of combat, his aircraft riddled with cannon fire, sought some smooth, flat place where he could crash wheels up; his airscrew made first contact with the sand and the rock, buckling and twisting as he skidded along the ground and then jumped from the cockpit to run for cover behind a pile of stones as enemy fighters dived to strafe him. That was the moment of damage. The long hours of repair are not in the least dramatic, but they require patience and infinite precision.

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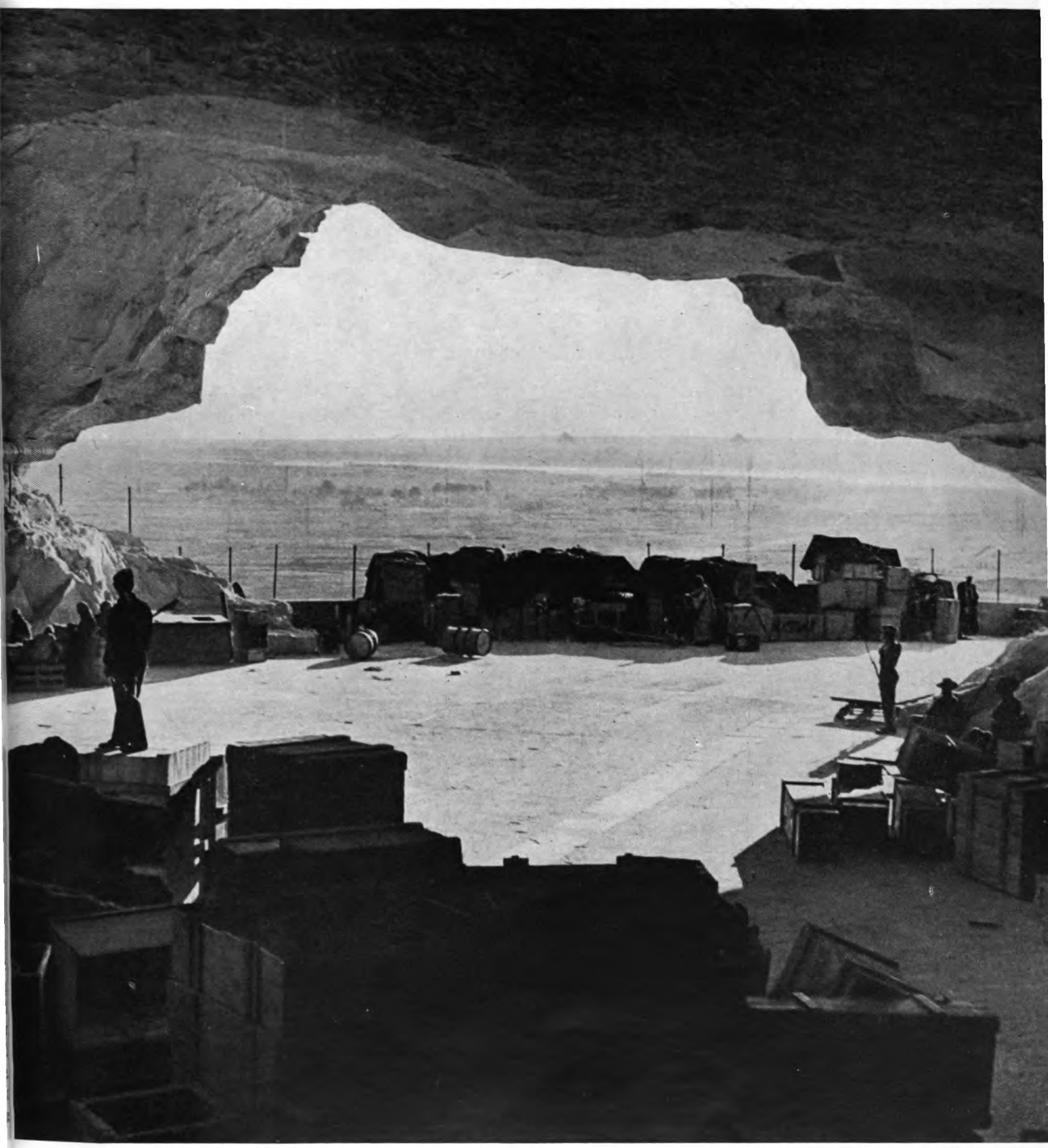

Huge bombproof stores and repair shops were made from the caves in the Mokattam hills, south of Cairo. The Pyramids, seen faintly in the distance across the Nile, were built of rock hewn from these caves.

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Dispersed in the back streets of Cairo is a whole little industry, the maintenance units which renew and reassemble the aircraft brought back from the desert. This one was an empty timber yard; it became the first engine repair shop. Outside its doors hums the vivid, clamorous life of native Cairo.

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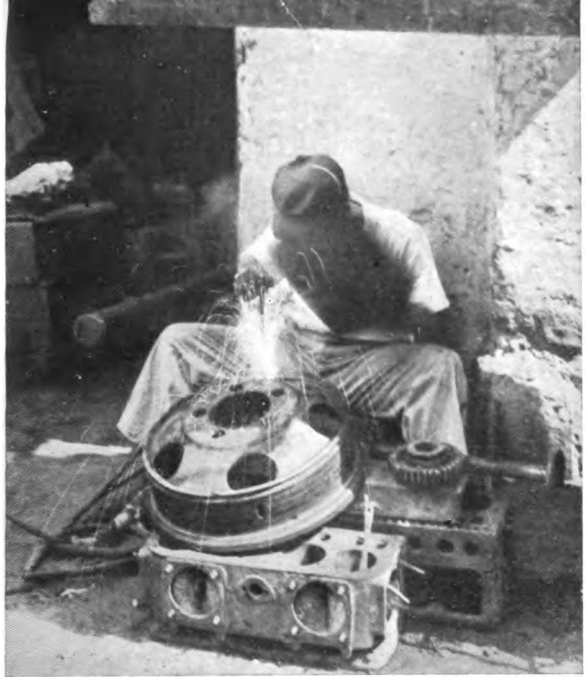

In the hundred or more little shops, using such tools as could be found in Cairo, craftsmen worked with remarkable precision. *Above,* an electric welder repairs a brake-drum: he is sitting out in the street. *Below,* the massive airscrew for a Tomahawk moves into position.

The twisted blades of the airscrew are stripped, cleaned, and then annealed in a bath of salt liquid with heat, until they are soft enough to be bent. Thence they pass through a series of presses. A second immersion in molten salt followed by a swift plunge into cold water hardens them, and they have but to be polished, sprayed and balanced into a perfect airscrew once more. The hot-bending of airscrews in this manner was once considered an operation of great technical difficulty, possible only with the aid of most expensive presses, twisting machinery and test tables. Having no such things at a nearer distance than 14,000 sea miles, R.A.F. technicians installed presses costing £25 each and worked by a lad, on the handle, together with a heavier press which in happier days crushed grapes in Turkey for the production of wine; they made twisting machines from pieces of scrap metal and worked them with salvaged motor-car jacks; they made their special test benches from girders torn from a roof by bombing; they produced airscrews straightened as perfectly as they could have been anywhere in the world—airscrews which lifted hundreds of fighters and bombers off the ground into battle again.

Thus, in the spring of 1942, the air power of the Middle East stood as well prepared for decisive battle as the men of the Command could make it, within the limits of the weapons and the material they possessed. To sketch its pattern briefly once again, it was split into four linked components. In the Western Desert was the mobile force of fighters, fighter-bombers and light bombers, to take part in the immediate battle. Based on Egypt was the striking-force of night bombers. A force of defensive day-and-night fighters was posted throughout the territories we held from Malta to Egypt, Syria to Iraq. Working in co-operation with the Royal Navy from the shores of Egypt and from Malta was a force of coastal aircraft to fight over the sea.

To support this power in the air, the men on the ground were established wherever the squadrons were based; and centred on Egypt was the industrious, ingenious maintenance-and-repair organisation. The commanders could have wished for a stronger air force—more aircraft, more men, ampler facilities—but what they had were trained and organised, and of a great spirit for the battles to come.

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II. THE FIGHTING RETREAT

5—Twenty-three Days of Battle

THE trial came in the early summer of 1942. During May it became clear that the enemy intended to make a full-scale assault on the Gazala line in the desert. He did not hide that intention. Every night large numbers of German bombers raided the airfields round Gambut, the railheads which had pushed over the frontier wire well into Cyrenaica and the chief supply port of Tobruk. It was no surprise attack. Rommel considered himself sufficiently well reinforced to sweep the Allied forces aside and to occupy Egypt and the Suez Canal. In the event he was very nearly but not quite right. He had not sufficiently studied those symptoms of air power which were spread before him during our retreat to Gazala.

Had the enemy not attacked in May, we ourselves intended to do so shortly afterwards; but we needed a little more time to accumulate supplies. Our air strength, for instance, was numerically weaker than his. By withdrawing some of the fighters and bombers from the vain assault on Malta, he was able to marshal nearly 1,000 aircraft in Libya, Crete and the Dodecanese Islands. The air forces of the Middle East had only a few more than 700. In the desert particularly our fighters were outnumbered, for against 277 the Axis could match more than 400.

On the other hand, his servicing and repair organisation was nothing like as good as ours. His serviceability, or actual fighting strength at any one time, was rarely more than half the total number of his aircraft. The serviceability of the R.A.F. squadrons was above 60 per cent. when the battle started, and by the crisis weeks at the end of June, when the retreat was at full stretch, it was actually increased to 84 per cent. This was accomplished by an effort on the part of the ground crews and the maintenance workers that at the time seemed miraculous and even in retrospect looks almost impossible.

The air forces which fought this battle were arranged in four groups, each collaborating with the other, the work of each being dovetailed into a unified air effort.

The desert striking-force was made up of 12 fighter squadrons, three light-bomber squadrons and two army co-operation squadrons, together with a few minor units. Five of the fighter squadrons however had been turned into fighter-bombers, while others were specialising in the work of bomber escort, so that the strength of pure fighters was not great. Most of them were Hurricanes, the rest Kittyhawks and Tomahawks. Had not the needs of Malta been so urgent, there would have been several squadrons of Spitfires in the desert. As it was, the first five Spitfires arrived at Gambut just before the battle started and were promptly "shot down" by the Italian radio in scores. There was some slight reinforcement of fighter strength while the battle was being fought, but it did not compensate for the losses. The light-bomber squadrons were equipped with Bostons and Baltimores, the former flown by the South African Air Force, the latter by the R.A.F.

Farther back in the desert was the force of medium bombers now organised with the ground mobility that has already been described. It consisted of seven squadrons of Wellingtons, one of which had been set aside for the work of launching torpedoes. During the course of the battle a squadron of R.A.F. Liberators was added to this force, together with the first unit of the United States Army Air Force to operate in the Middle East—a formation of Liberators known as the Halverson Detachment.

The group of squadrons which had charge of the air over the Mediterranean Sea stretched from

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In the summer of 1942, the new air weapon is tested and proved. During the retreat to Alamein, R.A.F. Middle East holds off the Luftwaffe, shields the army and battles grimly to protect our sea-borne convoys.

the landing grounds of the desert back to those around Alexandria; it was supplemented by the limited use of Malta as a striking-base now that the assault on that island had considerably eased. On the southern shore were eight squadrons for sea reconnaissance and the anti-submarine war, varying in equipment from Sunderland flying-boats to Blenheims and Marylands. There was a striking force of four torpedo-bomber squadrons, Beauforts and naval Albacores, and of two squadrons of twin-engine Beaufighters. In Malta, apart from its fighter defence force, it had been found possible to base three squadrons of Beauforts, three detachments of Wellingtons, a squadron each of naval Swordfish and Albacores, and a few Baltimores and Beaufighters.

Egypt itself was defended by nine squadrons of day fighters, some of which were engaged on the protection of coastal shipping, and two of night fighters. There were in addition some photographic units, an air-sea rescue service, an air ambulance service and three squadrons in all of communications aircraft.

The main battle plan was to allow the enemy to attack, to hold him in the desert, then to counter-attack at full strength—a plan which it was not found possible to fulfil. The task given to the air force was in brief to keep command of the skies, to watch and report every movement of the enemy and to attack him both at his bases and in the battlefield itself. In every particular the air forces succeeded in that task. Although they were eventually forced to retreat on the ground, they won a victory in the sky every day and night.

The battle fell into three very distinct phases. From May 26th until June 17th it was fought from the static positions that had been prepared in the Cyrenaican desert. From June 18th until June 30th the Allied forces were pushed into retreat as far as the last defence line of the Delta, at El Alamein, only some 70 miles from Alexandria. From July 1st to July 6th that line was assailed, tested and held. Those were the three periods—23 days, 13 days, 6 days.

The enemy started on May 26th to show some activity along the line of minefields and strong-points from Gazala to Bir Hakeim, the most southerly point of the desert line, which was garrisoned by the Free French Brigade; then that night the 15th and 21st Panzer Divisions raced round the south of Bir Hakeim to strike north towards El Adem. They were met on the ground by our own armour and from the air by bombers, fighter-bombers and low-strafing fighters.

At dawn on May 27th, on the airfields around Gambut, the air was vibrating with the harsh beat of Kittyhawk engines warming up. Presently there was a deeper drone as the first formation of Bostons flew steadily over from their landing ground at Baheira farther east, turning in a wide circle. It is difficult adequately to describe the feeling of power in that sight, a feeling that never failed no matter how often one saw it. There was something so unhurried and so purposeful in the close formation of Bostons, something almost leisurely. The dawn sun winked on the perspex of their noses, glanced along their cocked-up tails as they circled. Their engines gave out a calm, deep, inevitable note—and inevitable indeed the Germans were soon to regard them. They came, they came again, they kept on coming, tireless as the running of the days. They flew at first in formations of 12, which were later increased to 18, when our front-line troops glancing cheerfully upwards found a nickname for them. They called them the "Eighteen Imperturbables".

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In contrast the Kittyhawks seemed excited and impetuous, though indeed they were not. Flight after flight of them rose from the Gambut landing grounds, kicking aside the long clouds of dust, racing up to the Bostons in swift fours, one man weaving back and forth. In a few minutes they were clustering round the Bostons in the pattern they had so carefully chosen, swarming this way and that, protectively searching the skies; and suddenly the whole dark mass of aircraft headed in a straight line for the west.

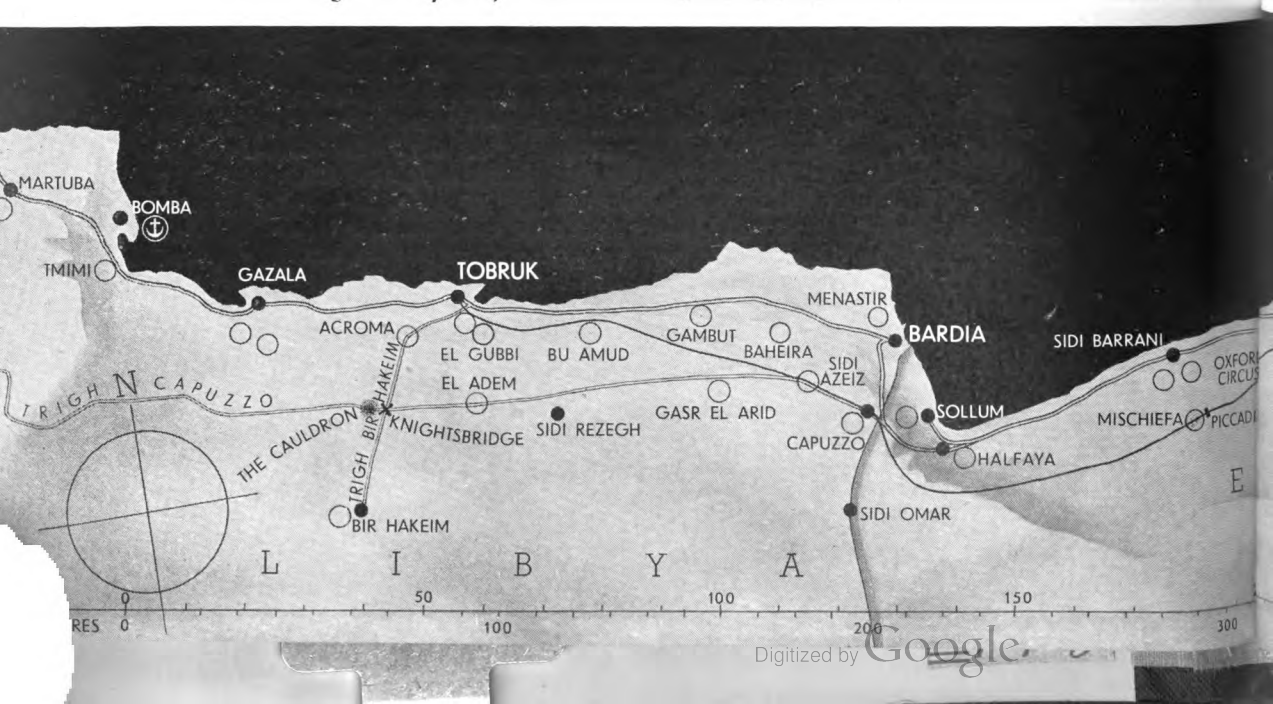
They sought out the German columns day after day, navigating across the desert without landmarks. Over the targets the Bostons carefully fanned out to an arranged distance. Then they all dropped their bombs when the leader released his. An avenue of smoke and sand advanced across the desert beneath, looking like a wide glade of woolly white trees in a Disney forest. Somewhere beneath it crouched the tanks and trucks and men of the enemy. Meanwhile, some of the Kittyhawks would certainly have climbed or dived to meet enemy fighters and to edge them away from their charges, while those in close escort clung tightly to the bombers as they formed up again.

It must be said at once that, although the Kittyhawks escorted the bombers in that way many times a day for many weeks and months, and although they lost many of their own number in the dogfights that raged all round the formations, only on one occasion did an enemy fighter succeed in penetrating the Kittyhawk screen and shooting down a Boston. That was later on. In these 23 days some of the bombers were lost to A.A. guns, but not one to enemy fighters. Not one.

This happy result was achieved by the long spring weeks of consultation, training and trial during which the Kittyhawks and the Bostons laboured together. The command of the whole formation was entrusted to the leader of the Kittyhawks. Throughout all this period of battle the Kittyhawk wing, which was set aside for this vital task of protecting the bombers, was commanded and frequently led by Wing Commander T. B. de la P. Beresford, D.S.O., D.F.C. The majority of the fighters which he led were squadrons of the S.A.A.F.—a particularly happy choice, since the Bostons which they protected were also those of the South Africans.

This was not the only air attack to which the advancing panzers and the supply columns immediately behind them were subjected. For the first time the enemy discovered that we had a Kittyhawk fighter-bomber. This new weapon had been saved until the first day of the actual battle, and indeed some of the pilots who flew at the transport columns had never dropped a bomb before in their lives. Sometimes the Kittybombers went out in separate formations, sometimes they formed part of the escort to the Bostons, adding their own bombs to the general weight and then re-forming to revert to their

On the night of May 26th, the 15th and 21st Panzer Divisions raced round the south of Bir Hakeim. They were



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task of fighters. This greatly increased the strength of the air attack. Whereas the Stukas could not venture without a large umbrella of fighters to protect them, the Kittybombers themselves formed part of the air umbrella to the Bostons.

The assault that was flung at the German columns in the first days of their advance was increased also, at considerable cost to the squadrons, by low-flying fighters strafing with their guns. The pilots who did this knew well the risks they were taking. They had to ignore the probability of being jumped from above by Messerschmitts—we had insufficient fighters to give them top cover—and they had to face the intense ground fire of the guns of the column itself. During the three days from May 29th to 31st, 39 fighters were lost. Strafing had then to be abandoned; such a cost could not be endured.

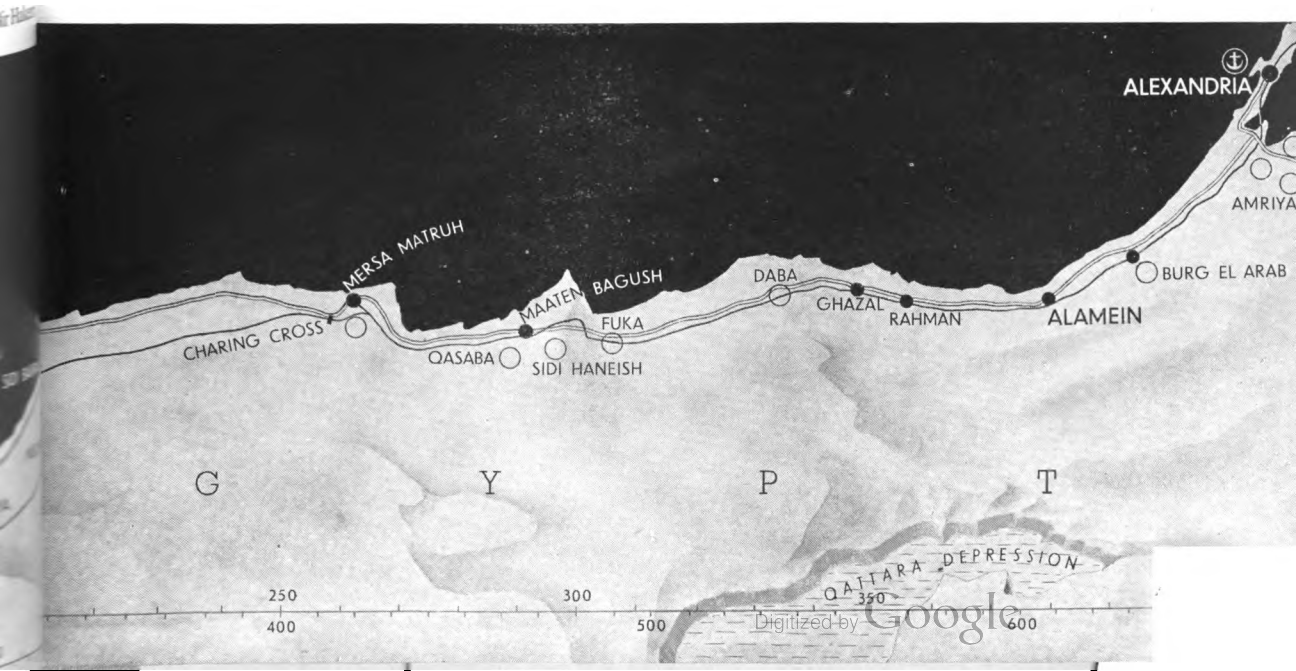
In the first few days aircraft alone destroyed about 1,050 enemy vehicles, killing the appropriate number of men. A German signals officer wrote in his diary on only the second day of the battle: "Low-level machine-gunning . . . chaos, panic." Prisoners who were hauled into our lines burst out with oaths against the Luftwaffe. "British aircraft seem to be able to do what they like without interruption," said one. "We are cursing the lack of air support," said another.

They were doing less than justice to their own airmen, for although the Italian air force was numerically the stronger, the Luftwaffe did nearly all the fighting. To a daily total of about 150 sorties the Italians contributed an average of eight. By July 6th the Luftwaffe had lost 210 aircraft as compared with 39 Italians destroyed. During those 23 days they lost 93 of them, 45 more were probably destroyed and nearly 100 damaged.

The panzers which had struck north towards El Adem were not happy. The British armour facing them did not break, the whole of the line from Gazala to Bir Hakeim held firm except for a small gap which the Germans had captured in the minefields, through which truck columns were trying to supply the tanks. The area to the east of this gap was that in which the heaviest fighting was taking place. It was nicknamed the Cauldron, and the light bombers and fighter-bombers proceeded at once to stir it. The attacks ranged backwards and forwards across the Cauldron and into the minefield gap beyond. As the bombing increased, vehicles on the ground were seen to swerve into a panic, to bump into each other in this narrow territory, to turn blindly into the minefields and blow up.

By June 1st the enemy position was critical, but on that day, under cover of a sandstorm, they contrived to widen the two gaps into a channel 10 miles wide. They overran Sidi Muftah ridge and fortified their bridgehead through our minefields. Before they could

ıet by our armour from Knightsbridge and by bombers and fighters based on the airfields round Gambut.



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Bomber target. By June 1st, Rommel was struggling to bring supplies to his forward armour. An enemy column passing through the minefields north of Bir Hakeim lashes the desert dust into thick clouds.

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Bomber attack: the Cauldron is stirred. Enemy tanks and transport swerve and flee as the bombs strike. The sand is furrowed like the sea as the blast passes over it.

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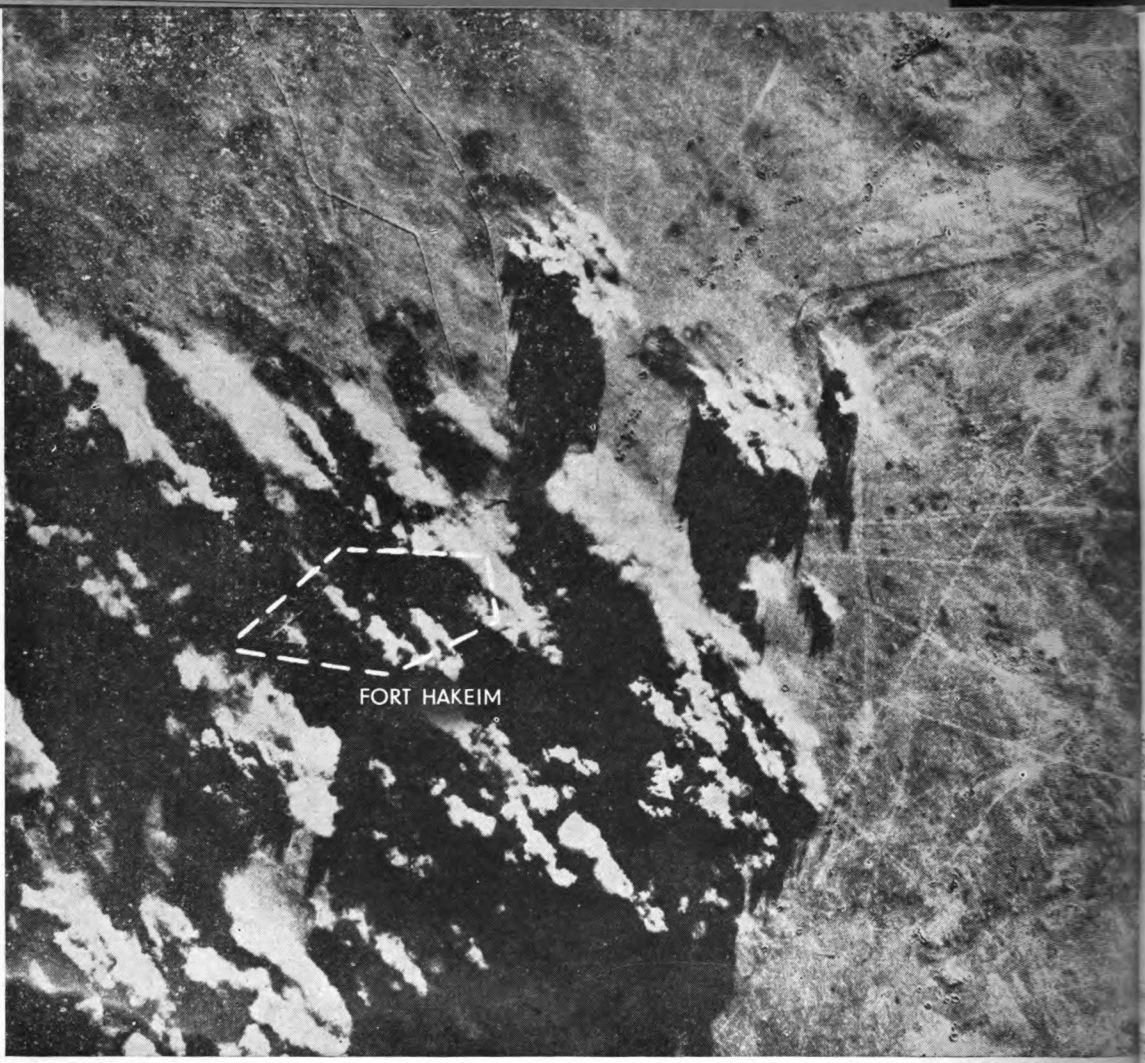

To reduce Bir Hakeim, Rommel flung in every Stuka he possessed. A German airman took this picture as the smoke clouds rolled over the foxholes etched in the face of the desert. The Stukas were cut to pieces by the R.A.F.

advance any farther, Bir Hakeim, the southern strong-point garrisoned by the Free French, would have to be overrun.

The Luftwaffe opened the assault. Every available Stuka was collected to bomb Bir Hakeim under the strongest possible fighter cover. Here was something that the R.A.F. would not tolerate. The pilots of the fighter squadrons had been moved by the gallant defence of the French. To many it seemed that in this one facet of a single battle the true France had been reborn. So the R.A.F. adopted Bir Hakeim. Of the seven Stuka parties which were intercepted and cut to pieces during the 23 days, most of them were over that garrison. Of the Stukas alone, 23 were destroyed and so many more damaged that at one time the Germans had insufficient to put a single Stuka raid into the sky. They had to bring Ju.88s hurriedly from Crete to fill the gap.

Nor was the air aid to Bir Hakeim confined to shooting down its raiders or forcing them to jettison their bombs in the desert. German supply columns approaching the place were incessantly bombed and machine-gunned by the Kittyhawks; in one day alone, June 6th, they knocked out some 70 vehicles. At night the Hurricanes and the lumbering transport Bombays

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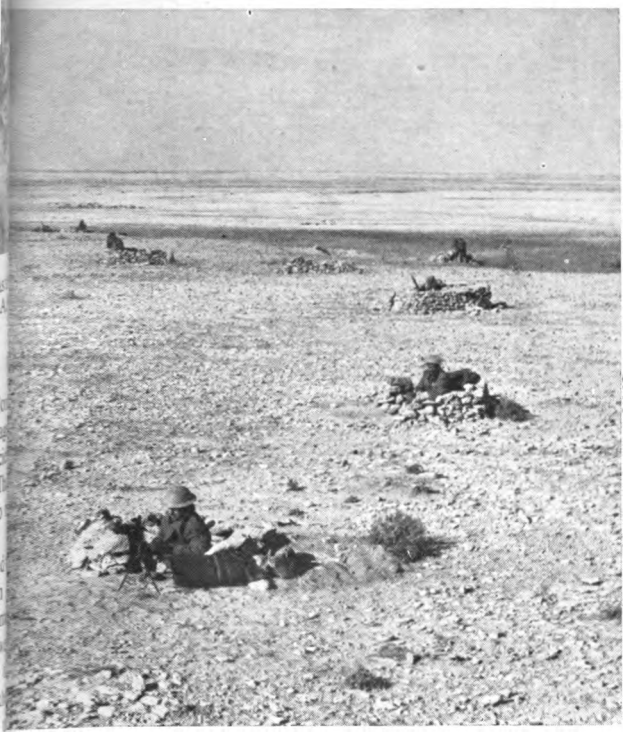
flew over the garrison and dropped them supplies. And as the fighter pilots admired the staunchness of the garrison, so the French soldiers in their turn vaunted the airmen. General Koenig, their commander, sent a signal to the Desert Air Force: "Bravo. Merci pour la R.A.F." Air Vice-Marshal Coningham replied cheerfully, "Bravo à vous. Merci pour le sport."

In the end Bir Hakeim fell, but not to the dive-bomber. Continuous shelling from heavy artillery which had been brought into range, combined with the dwindling of supplies to a garrison now completely surrounded, eventually reduced this expanse of bare desert which had, nevertheless, made for itself a name. The French did not allow it to be overrun. On the night of June 10/11th they broke out to the south, some 3,000 men of the garrison getting away to fight again.

From foxholes such as these, the Fighting French defended Bir Hakeim for 15 days. The fort fell, not to assault from the air, but to artillery bombardment and from shortage of supplies.



It could not have been otherwise, but it was the turning-point of the battle. For the first time the panzers had cleared their rear and had space to disperse away from the incessant bombing attacks. They could afford to push hard at the British positions farther north and north-east. Hard and heavy battles were fought against the Knightsbridge crossing of the two big desert tracks, and against El Adem, south of Tobruk, where the airfield lay.

In this stage the whole weight of air assault was flung against enemy formations directly attacking our troops. Hour after hour the Bostons and the Kittyhawks went out on a shuttle service of bombing, returning to refuel, rearm, gulp a cup of chlorinated tea and take off to bomb again. The distances they had to fly were getting so short that they referred to these flights as "tram-raids." The landing grounds shimmered in the June heat under a constant cover of dust kicked up by the take-offs. Beneath it every man of the force worked each hour of daylight and far into darkness. The ground crews abandoned their tents and dug themselves holes in the ground beside their aircraft in the dispersal areas; they flung themselves wearily into these holes to get about four hours' sleep out of 24—the rest of the time they were working. After darkness they muffled their heads in blankets and worked on their aircraft by the light of pocket torches. They worked through heavy bombing raids in which the enemy were using peculiarly unpleasant anti-personnel missiles known as "butterfly bombs." The armourers toiled at the guns; the refuelling parties scarcely dismounted from their bowsers, living day after day in one long reek of petrol.

The aircraft losses which we were suffering could not be replaced in time, but by incessant work the ground crews increased the number of possible sorties by actually forcing up the serviceability figures beyond those which are expected from squadrons in ideal conditions on permanent stations. Yet these men did it through midsummer heat in the clouded dust of the desert. The pilots and aircrews flew, fought and flew again without time to shave their beards or change their clothes.

Many of the Boston crews made three and four bombing raids each day. Two squadrons of Kittyhawks flew every serviceable aircraft they possessed, in this month and the next, an average

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of 2½ times a day for 61 days. In their periods of rest the airmen took to the scant shade of the tents, talking of nothing but tactics—how best to apply the lessons they had just learned. Their clothes were tattered, some of their shirts were ripped, their hair and sprouting beards were clogged with sand; but their deeds were done with determination and a cheerfulness that did not fail. They improved so consistently on their technique that, by the end of the 23 days, the period of time which elapsed between a call from the Army for support and the arrival of the Bostons over the target was brought down to 35 minutes; if Kittybombers went alone it was considerably less.

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It was done, largely by men of that one squadron, with a little help from other engineers, on a sandy airfield in the Canal zone. The engineering side of it alone meant many changes in the Wellington, for when two torpedoes were hung on it the whole balance of the aircraft was upset. Very soon however the squadron produced a torpedo-carrying aircraft that would fly. Then the crews trained themselves to deliver attacks with dummy torpedoes at a small yacht—a difficult technique with which none of them was familiar. All the time, part of the squadron carried on with the normal bombing of Benghazi; yet within three months they had added a long-range torpedo force to the strength of the Middle East. Wing Commander J. H. Chaplin, D.S.O., D.F.C., who commanded the squadron, was the man who shaped this new weapon and scored the first success with it.

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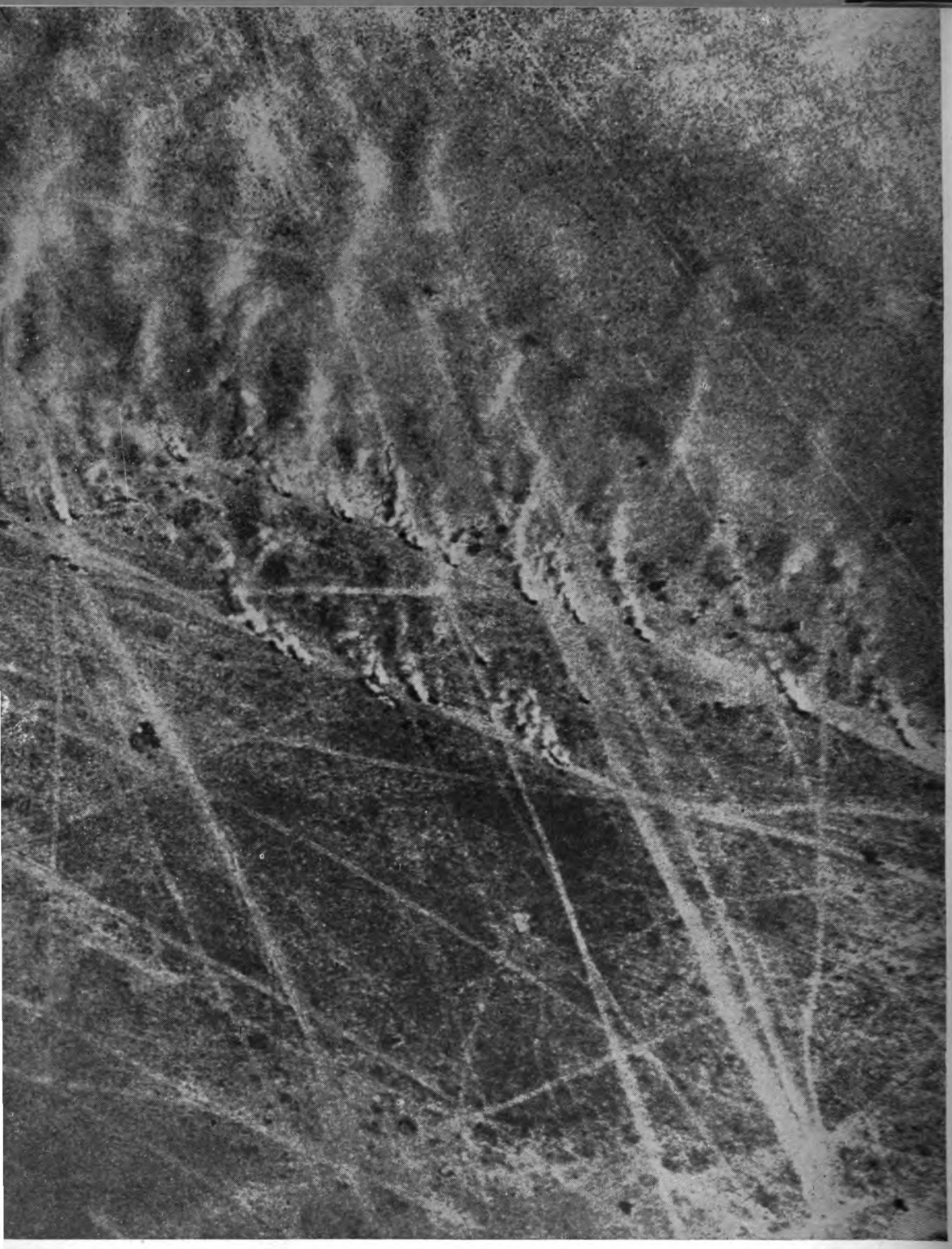

Bomber target. By June 1st, Rommel was struggling to bring supplies to his forward armour. An enemy column passing through the minefields north of Bir Hakeim lashes the desert dust into thick clouds.

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Bomber attack: the Cauldron is stirred. Enemy tanks and transport swerve and flee as the bombs strike. The sand is furrowed like the sea as the blast passes over it.

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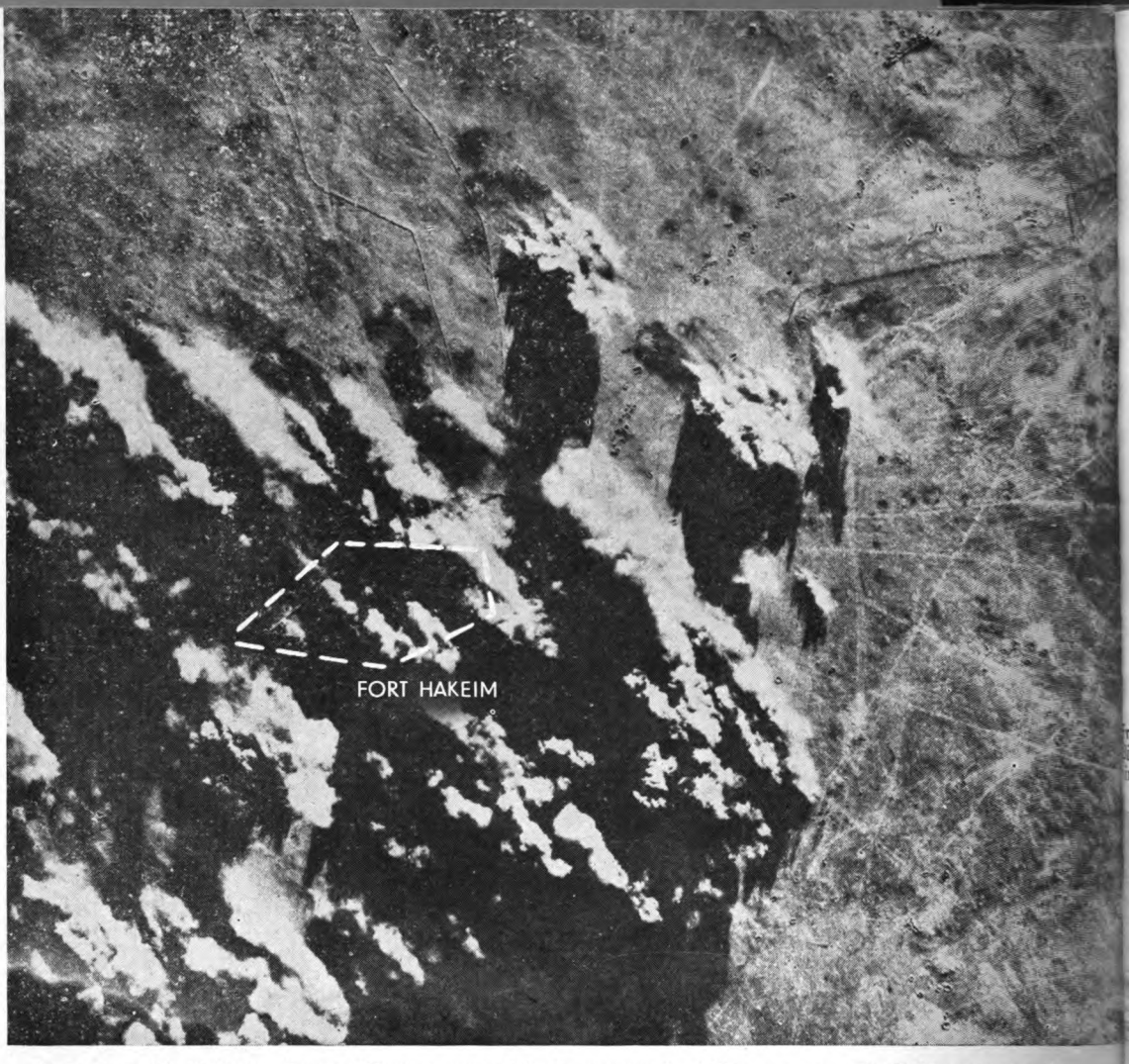

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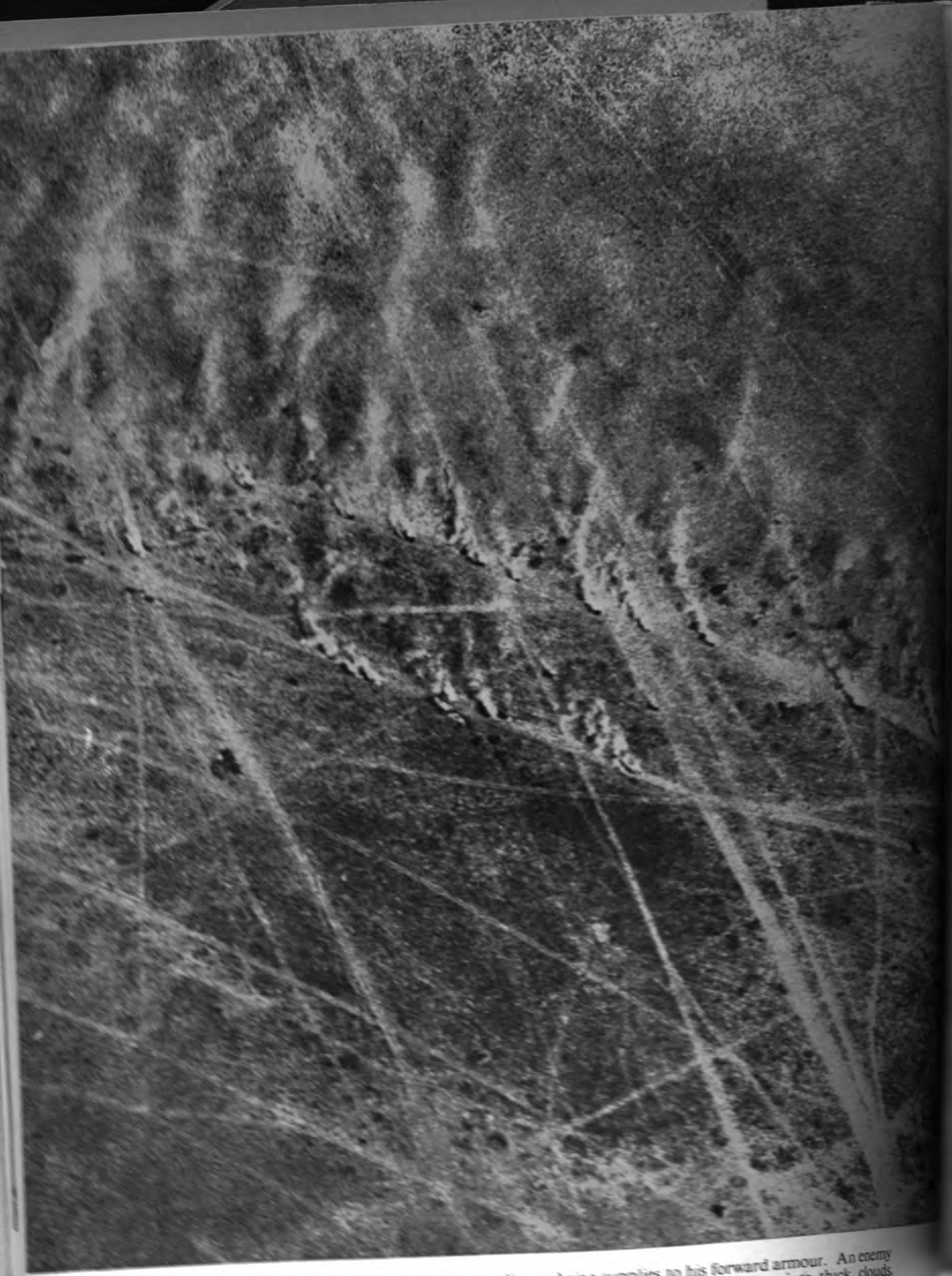

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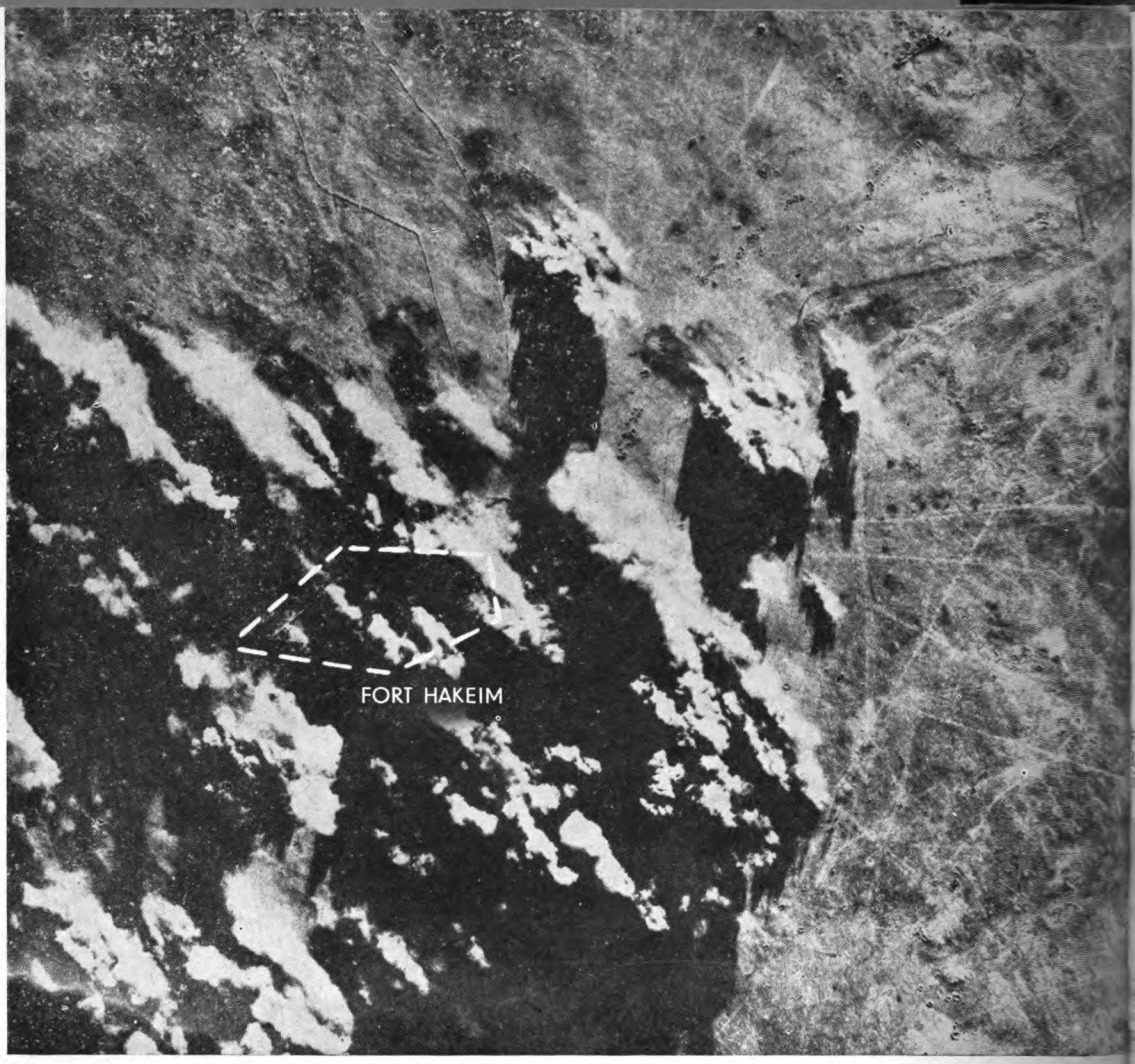

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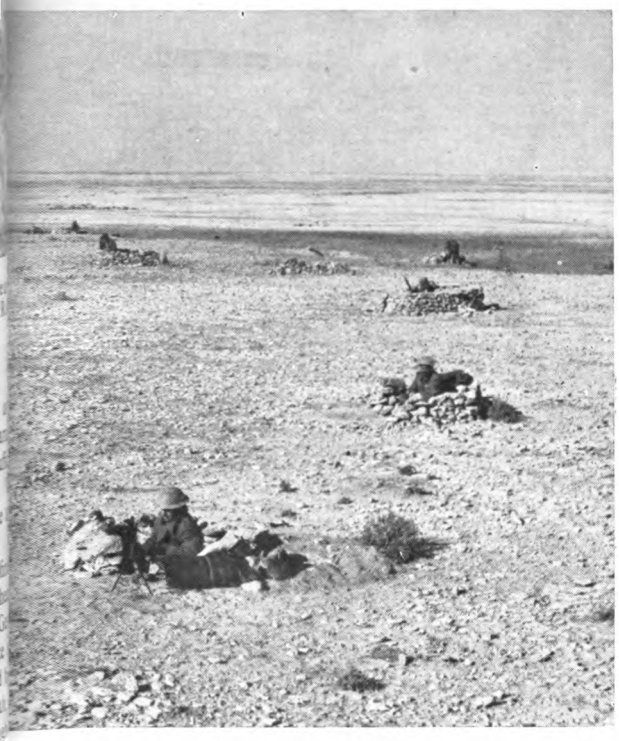

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The epic of Malta's defence by men of all three Services and by the endurance of the civilians, from the unearthing from packing-cases of four Sea Gladiators in the first days to the climax of 1942, cannot be given justice in such a short account as this. It needs a separate book. The offensive power of Malta, however, the way the island struck back, is an integral part of the Middle East air story.

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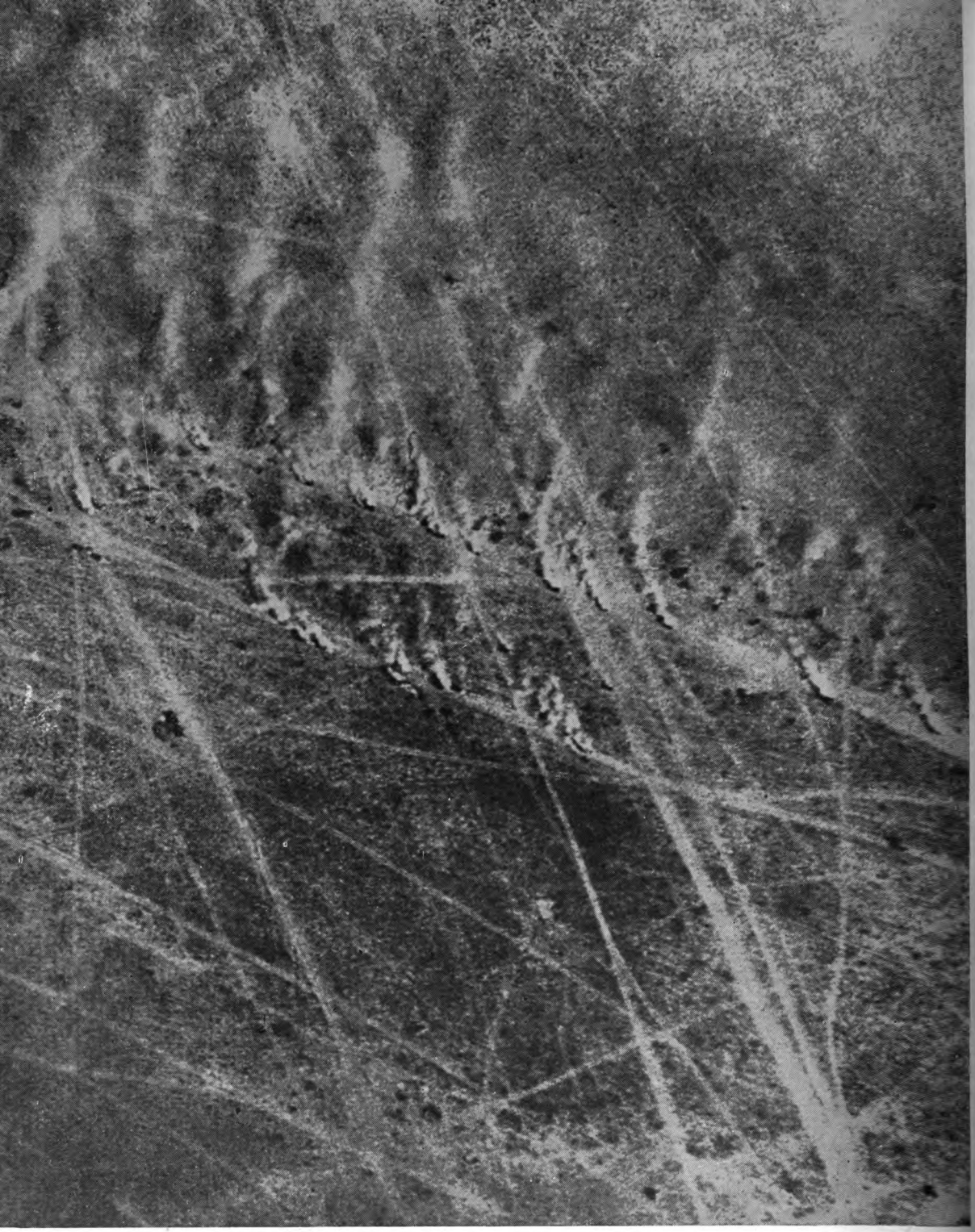

Bomber target. By June 1st, Rommel was struggling to bring supplies to his forward armour. An enemy column passing through the minefields north of Bir Hakeim lashes the desert dust into thick clouds.

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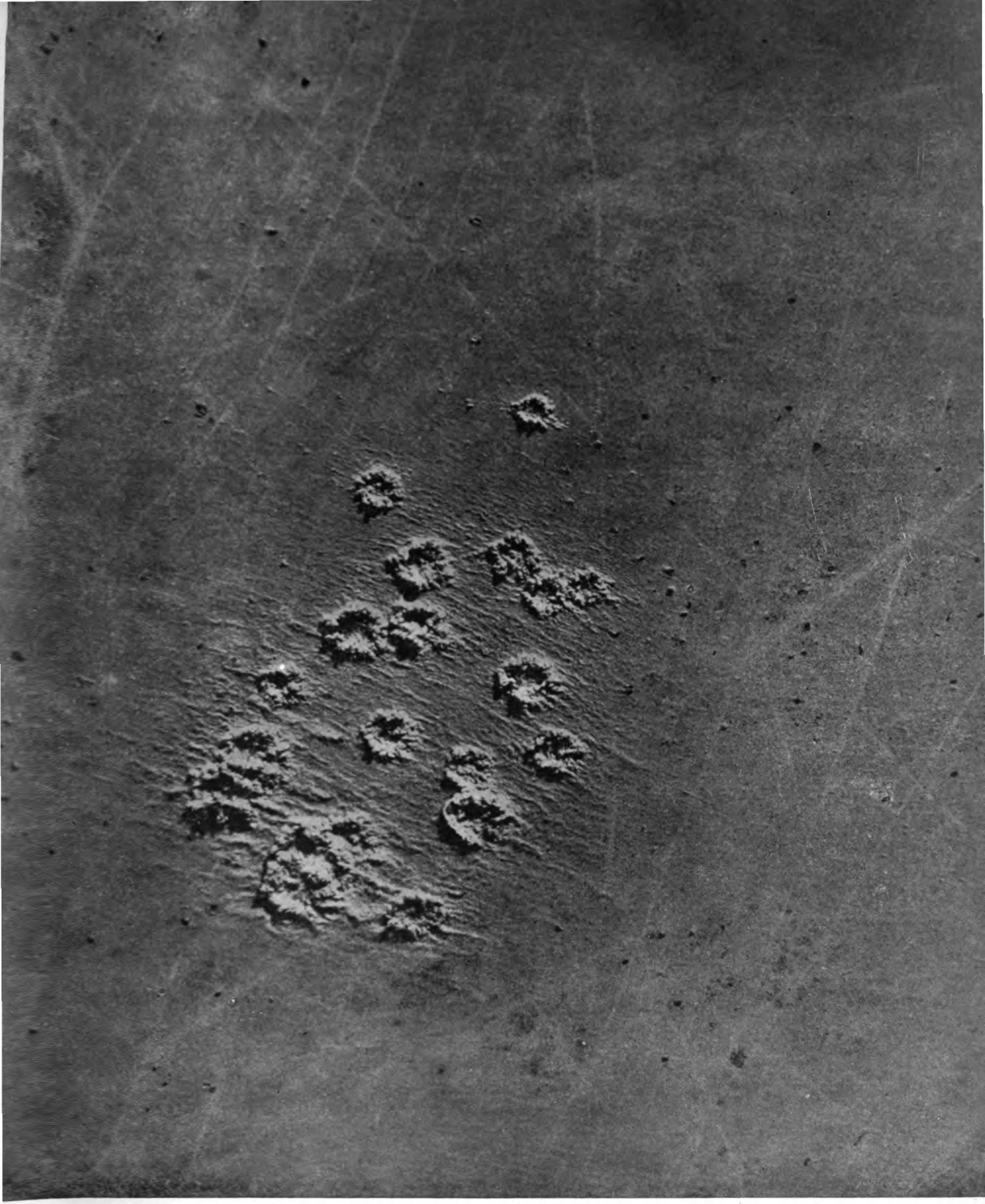

Bomber attack: the Cauldron is stirred. Enemy tanks and transport swerve and flee as the bombs strike. The sand is furrowed like the sea as the blast passes over it.

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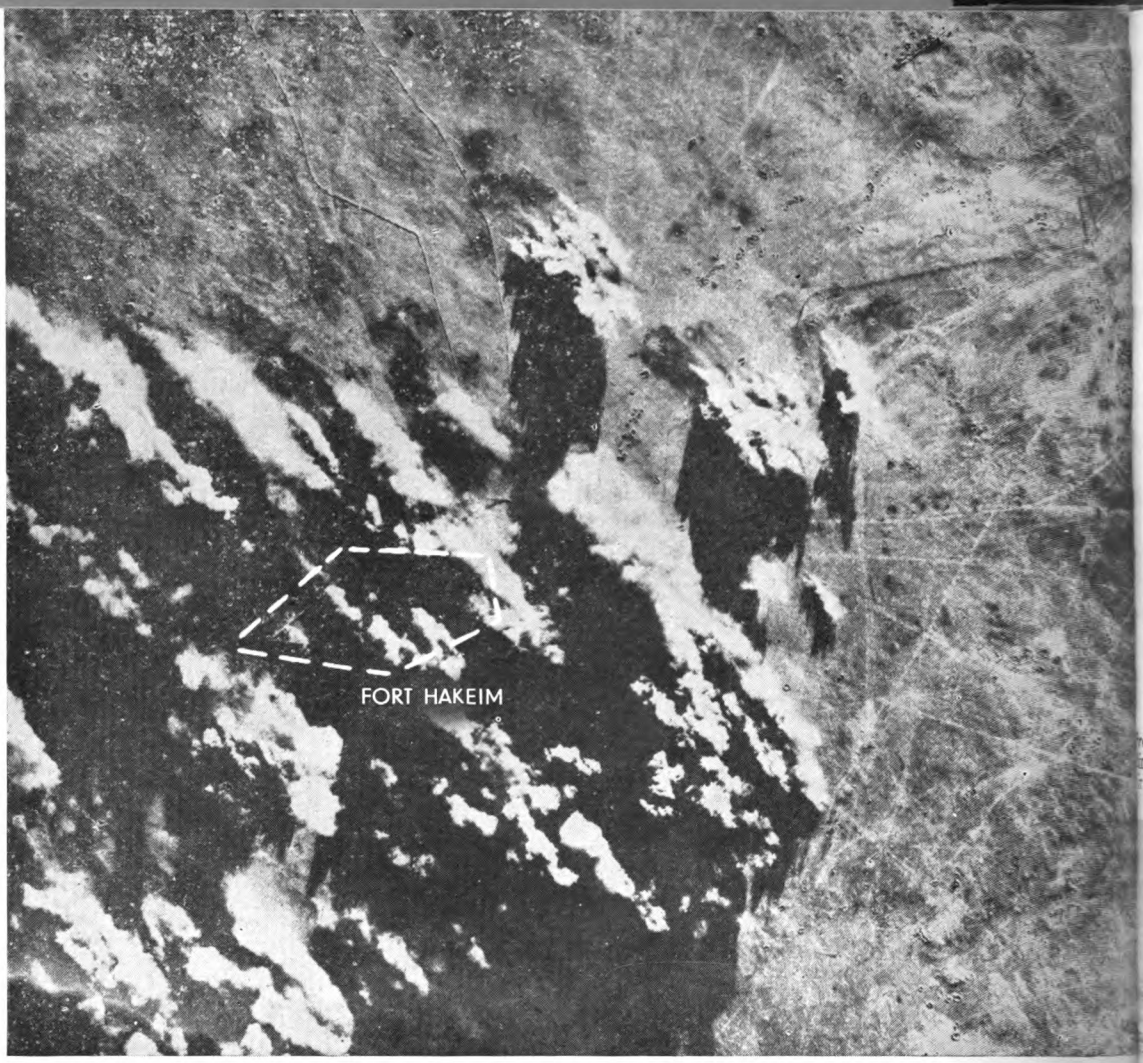

To reduce Bir Hakeim, Rommel flung in every Stuka he possessed. A German airman took this picture as the smoke clouds rolled over the foxholes etched in the face of the desert. The Stukas were cut to pieces by the R.A.F.

advance any farther, Bir Hakeim, the southern strong-point garrisoned by the Free French, would have to be overrun.

The Luftwaffe opened the assault. Every available Stuka was collected to bomb Bir Hakeim under the strongest possible fighter cover. Here was something that the R.A.F. would not tolerate. The pilots of the fighter squadrons had been moved by the gallant defence of the French. To many it seemed that in this one facet of a single battle the true France had been reborn. So the R.A.F. adopted Bir Hakeim. Of the seven Stuka parties which were intercepted and cut to pieces during the 23 days, most of them were over that garrison. Of the Stukas alone, 23 were destroyed and so many more damaged that at one time the Germans had insufficient to put a single Stuka raid into the sky. They had to bring Ju.88s hurriedly from Crete to fill the gap.

Nor was the air aid to Bir Hakeim confined to shooting down its raiders or forcing them to jettison their bombs in the desert. German supply columns approaching the place were incessantly bombed and machine-gunned by the Kittyhawks; in one day alone, June 6th, they knocked out some 70 vehicles. At night the Hurricanes and the lumbering transport Bombays

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flew over the garrison and dropped them supplies. And as the fighter pilots admired the staunchness of the garrison, so the French soldiers in their turn vaunted the airmen. General Koenig, their commander, sent a signal to the Desert Air Force: "Bravo. Merci pour la R.A.F." Air Vice-Marshal Coningham replied cheerfully, "Bravo à vous. Merci pour le sport."

In the end Bir Hakeim fell, but not to the dive-bomber. Continuous shelling from heavy artillery which had been brought into range, combined with the dwindling of supplies to a garrison now completely surrounded, eventually reduced this expanse of bare desert which had, nevertheless, made for itself a name. The French did not allow it to be overrun. On the night of June 10/11th they broke out to the south, some 3,000 men of the garrison getting away to fight again.

From foxholes such as these, the Fighting French defended Bir Hakeim for 15 days. The fort fell, not to assault from the air, but to artillery bombardment and from shortage of supplies.

It could not have been otherwise, but it was the turning-point of the battle. For the first time the panzers had cleared their rear and had space to disperse away from the incessant bombing attacks. They could afford to push hard at the British positions farther north and north-east. Hard and heavy battles were fought against the Knightsbridge crossing of the two big desert tracks, and against El Adem, south of Tobruk, where the airfield lay.

In this stage the whole weight of air assault was flung against enemy formations directly attacking our troops. Hour after hour the Bostons and the Kittyhawks went out on a shuttle service of bombing, returning to refuel, rearm, gulp a cup of chlorinated tea and take off to bomb again. The distances they had to fly were getting so short that they referred to these flights as "tram-raids." The landing grounds shimmered in the June heat under a constant cover of dust kicked up by the take-offs. Beneath it every man of the force worked each hour of daylight and far into darkness. The ground crews abandoned their tents and dug themselves holes in the ground beside their aircraft in the dispersal areas; they flung themselves wearily into these holes to get about four hours' sleep out of 24—the rest of the time they were working. After darkness they muffled their heads in blankets and worked on their aircraft by the light of pocket torches. They worked through heavy bombing raids in which the enemy were using peculiarly unpleasant anti-personnel missiles known as "butterfly bombs." The armourers toiled at the guns; the refuelling parties scarcely dismounted from their bowsers, living day after day in one long reek of petrol.

The aircraft losses which we were suffering could not be replaced in time, but by incessant work the ground crews increased the number of possible sorties by actually forcing up the serviceability figures beyond those which are expected from squadrons in ideal conditions on permanent stations. Yet these men did it through midsummer heat in the clouded dust of the desert. The pilots and aircrews flew, fought and flew again without time to shave their beards or change their clothes.

Many of the Boston crews made three and four bombing raids each day. Two squadrons of Kittyhawks flew every serviceable aircraft they possessed, in this month and the next, an average

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of 2½ times a day for 61 days. In their periods of rest the airmen took to the scant shade of the tents, talking of nothing but tactics—how best to apply the lessons they had just learned. Their clothes were tattered, some of their shirts were ripped, their hair and sprouting beards were clogged with sand; but their deeds were done with determination and a cheerfulness that did not fail. They improved so consistently on their technique that, by the end of the 23 days, the period of time which elapsed between a call from the Army for support and the arrival of the Bostons over the target was brought down to 35 minutes; if Kittybombers went alone it was considerably less.

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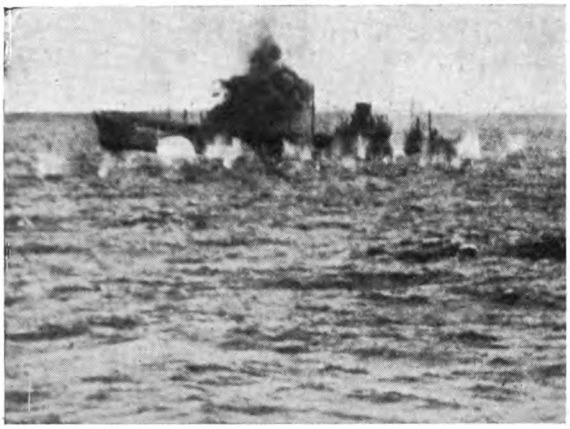
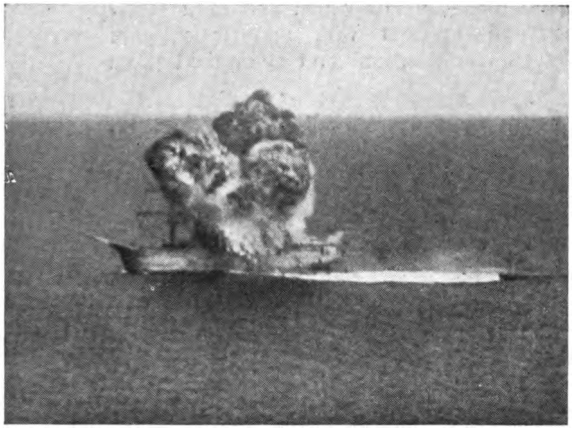
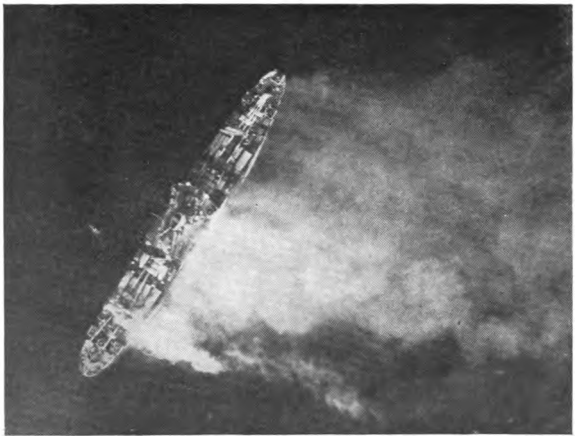


1. Malta struck back throughout the heavy blitz. Bombs and machine-guns sink a tanker off the Tunisian coast.

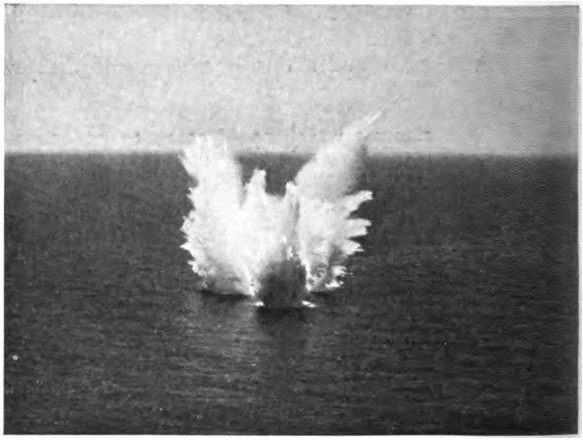


2. Rommel's oil explodes as a second tanker is attacked by Blenheims off Tunisia. The ship will burn itself out.

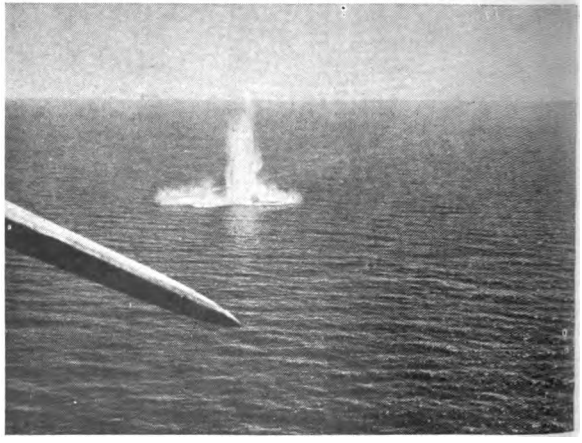


3. A torpedo attack by Beauforts stopped this ship and set it on fire. The deck is packed with M.T. for Rommel.

4. The patrol that never ends. An Italian submarine, surprised by a Sunderland, makes a violent turn to port.



5. As the submarine turns, the bombs strike. Cascades of foam rise as high as a church tower.



6. The upheaval subsides, the submarine emerges. Its casing is damaged near the bows, but it still floats.

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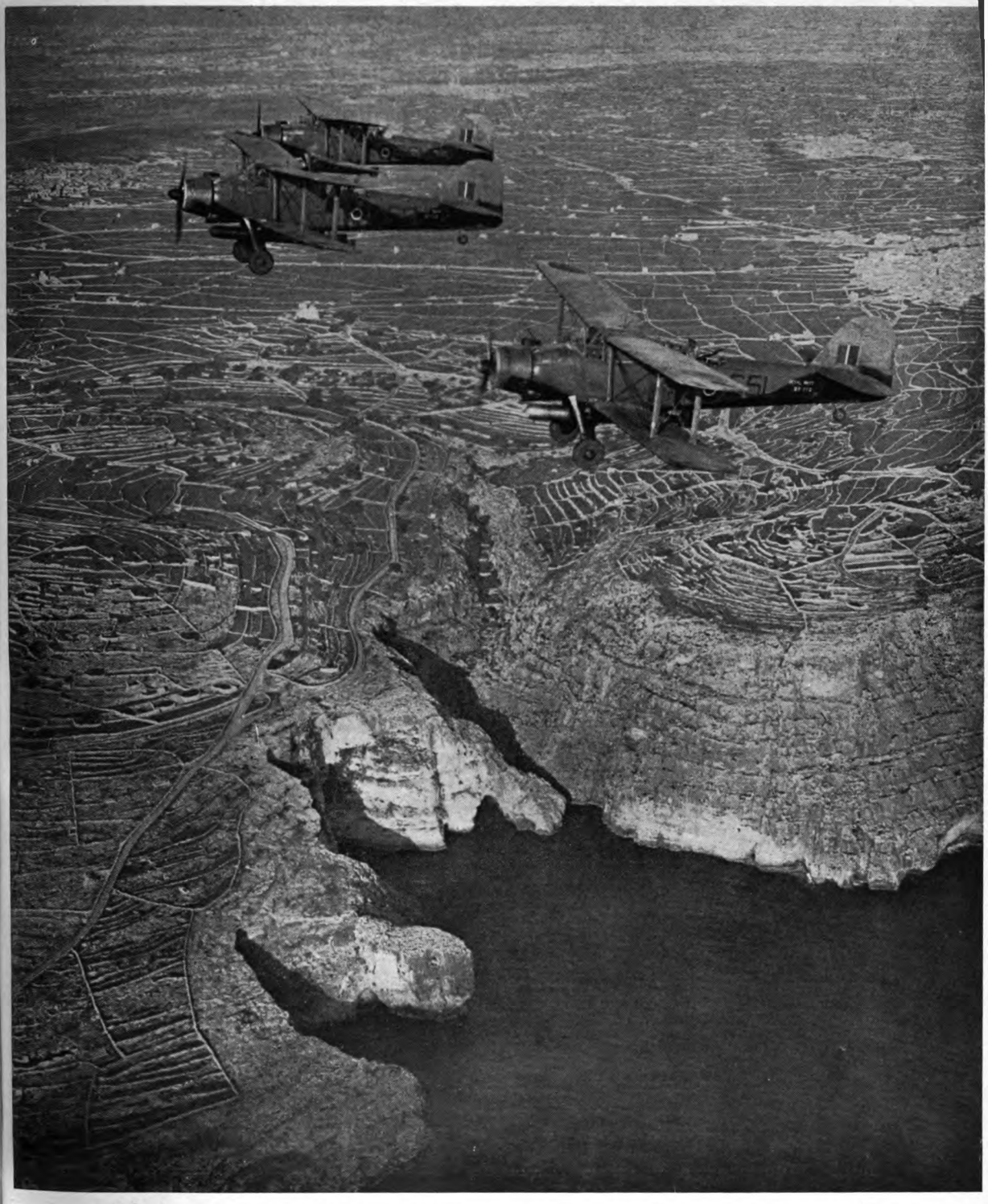

Naval Albacores were part of the striking force operating from Malta's cratered airfields. In the convoy action shortly to be described, they scored torpedo hits on a cruiser and two destroyers.

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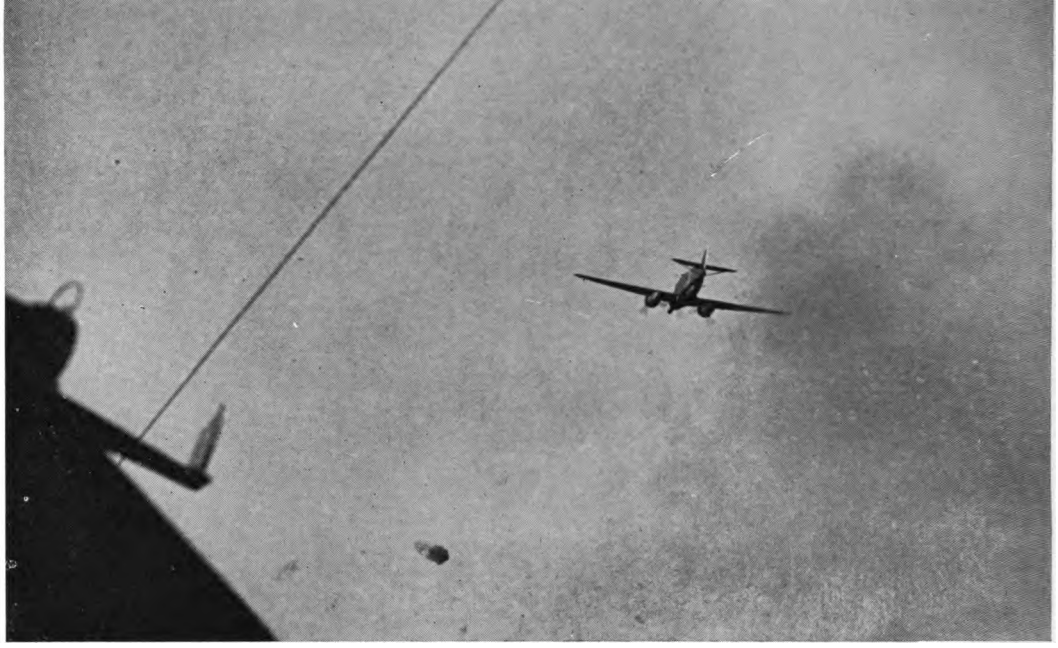

The major attack begins. An enemy torpedo bomber, its torpedo clearly visible beneath the fuselage, passes over a British cruiser during the western convoy battles of June 14th/16th, 1942.

of the harbour with only their superstructure above water.

On the Egyptian mainland, Air Vice-Marshal Slatter's force was concerned with the continual task of protecting Allied merchant vessels which ran along the coast from Alexandria to deliver supplies to Tobruk in order that the Army might be strengthened, or traversed the routes of the eastern Mediterranean along the shores of Egypt, Palestine and Syria. They were all liable to attack, either by bomber or by submarine; and although most of them reached port unharmed, there were some losses, chiefly on the Tobruk run. A large number of Italian submarines were working in the Mediterranean at that time. Patrol aircraft kept watch for them 24 hours a day—the one patrol that never ends, nor will end until the hunt is ended.

The results of the anti-submarine war are the most difficult of all to assess. Its successes are largely kept secret. But it can be said that of the many attacks made at this time on submarines by aircraft, mostly close inshore between Daba and Tobruk, several were successful. Nevertheless we lost some ships to submarines on the Tobruk run, and some more to aircraft in Tobruk harbour itself. Two of them were hospital ships. The "Somersetshire," hit by a submarine's torpedo on April 7th, managed to get into Alexandria under her own power two days later. The 'Ramb IV,' bringing back wounded from Tobruk, was bombed by a single aircraft near Alexandria on May 10th. She was set on fire and a number of the wounded men were killed. After the survivors had been taken off, the hospital ship sank.

Most of these losses were due to the fact that the enemy held more of the commanding airfields than we, and that, although Malta could not be

Two large formations

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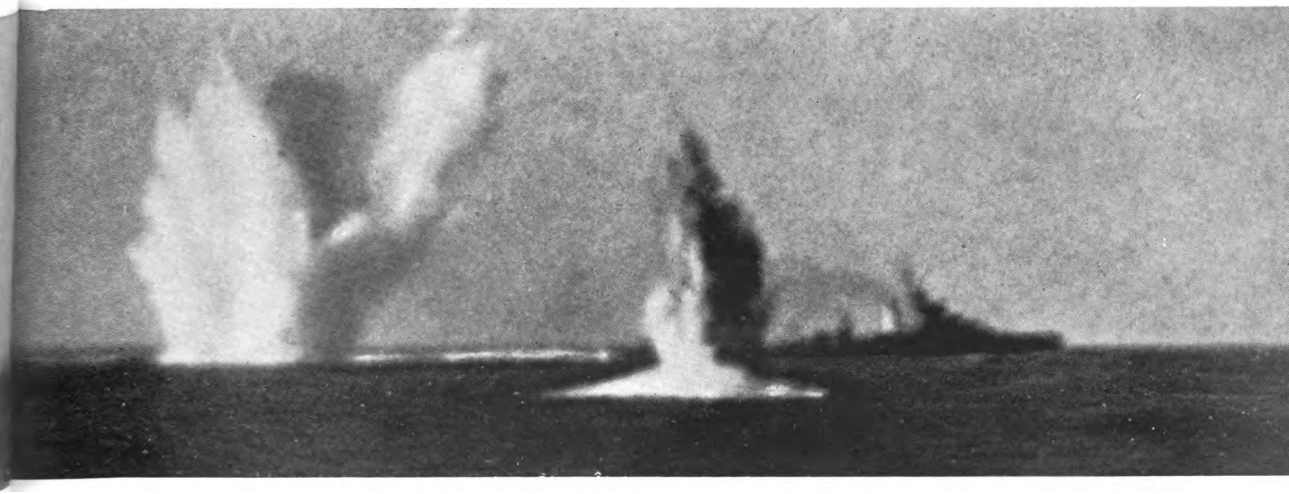
beaten even by the big enemy air force which was concentrating on it, the airfields there were largely useless for anything but local defence. As a result the enemy were able to run a good many of their own ships through from Europe to Africa, though not without some losses.

On April 14th it was known that an important enemy convoy was at sea. Owing to the blitz on Malta, several Marylands and Blenheims had to be briefed to search for the convoy from Bu Amud in Cyrenaica. The crews knew that, if they sighted and shadowed the ships, petrol consumption would compel them to land in Malta under the heaviest enemy fighter sweeps. One of the Marylands, piloted by Flying Officer J. B. Halbert, sighted the convoy a short distance from the east coast of Sicily, steaming in the direction of Tripoli. Its importance was evident from the fact that two of the four merchant vessels were of 10,000 tons each, with an escort of five warships. The Maryland shadowed the convoy until its petrol was nearly exhausted, sending from time to time clear and valuable reports of its progress. It then tried to make Malta, but was shot down four miles from the coast, all the crew being lost.

The information signalled by the Maryland was the basis of an attack by eight torpedo-carrying Beauforts and four escorting Beaufighters. This force was also compelled to take off from Bu Amud to attack a target at a distance of 500 miles over the sea, with the knowledge that a landing would then have to be attempted at Malta. On the outward journey the leading Beaufighter shot down two Me.110s and damaged a Ju.88. Owing to a mischance the Beauforts overshot the target without having seen the ships, although the Beaufighters had sighted them. A little time was wasted while the Beauforts came round to search for the ships again, during which a force of more than 100 Me.109s was taking off from the Sicilian coast, 120 nautical miles distant. It was through this fighter screen, coupled with heavy A.A. fire from the ships, that Flight Lieutenant J. M. Lander, D.F.C., led the Beauforts in a low-level torpedo attack. Three hits were scored on the merchant vessels, including both those of 10,000 tons, and a destroyer which was hit is believed to have sunk.

While the attack was still in progress, two of the Beauforts were shot down. The remainder, fighting off innumerable Messerschmitts, turned towards Malta, over which yet more enemy aircraft were keeping standing fighter patrols. Within sighting distance of the island three more Beauforts were shot down. Some of the crews saved themselves by swimming ashore, some were picked up by the air-sea rescue launches of Malta, some were killed by Messerschmitts which dived and shot them as they floated helplessly in the sea. The other Beauforts reached Malta safely, though badly damaged. The



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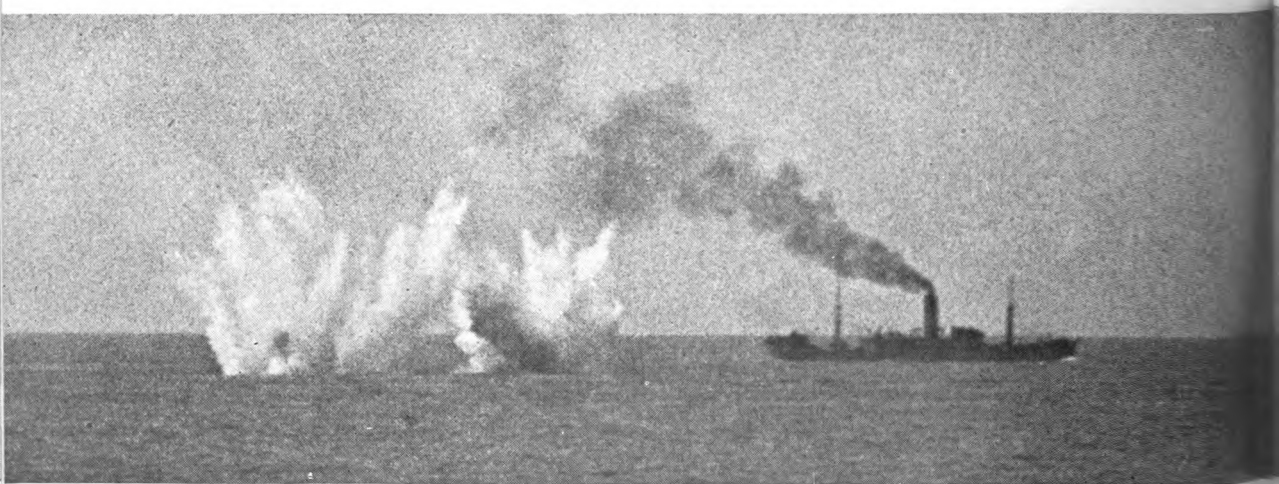
All this gives only an indication of the intensity of the air war which was continually waged over the Mediterranean. It reached its first peak in the aircraft-*versus*-warship battle, which developed during the very heat of Rommel's land attack in the Western Desert, described in the previous chapter. It emerged from the protection of those two British convoys which we were forced to send towards besieged Malta in June 1942—one from the western end of the Mediterranean, and one from the eastern.

The story of the Gibraltar convoy is soon told. This convoy of merchant vessels, with a strong naval escort including a battleship, passed Gibraltar on June 13th without incident on that day or the next, except for an ineffective bombing attack. At last light on June 14th, however, a Spitfire on reconnaissance reported two cruisers and four destroyers leaving Palermo. Soon after dawn the following day these warships opened fire and the escort signalled for an air attack to be made on them from Malta.

As will be seen, so much was going on farther east in the Mediterranean that there was a scant force of strike aircraft on the island at the time—two Beauforts with crews far from experienced, and four naval Albacores. These aircraft were assembled and sent out against the Italian warships with a cover of 16 Spitfires to hold off a swarm of Messerschmitts. The Beauforts led the torpedo attack, hitting the leading cruiser and setting her on fire. After them came the Albacores which hit and severely damaged one of the escorting destroyers. The Italian surface force withdrew without any further attempt to sink the convoy. Albacores had another try for the warships during the afternoon. Once again they scored two hits on a cruiser and a probable on a destroyer.

This phase of the aircraft-warship battle was definitely our victory, for at the cost of one Albacore, considerable damage had been done to the Italian ships, whereas our own were untouched. But within an hour or so the major attack developed, this time from the air. Before dusk two large formations of escorted dive-bombers had inflicted damage which slowed up the whole convoy considerably during the night. Whereas it should have been only 110 miles from Malta next morning, within range of the protection of Spitfires, in fact it was still 140 miles away; the Spitfires covered it nevertheless, straining their petrol endurance. Once under the protection of their guns the ships were damaged no more.

The Spitfires and a few Beaufighters fought all day for the sky above, shooting down 13, probably



The convoy fights through. After three days of incessant sea and air fighting, the convoy, wi

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destroying four and damaging another 13 enemy aircraft which still clung to the attack. We lost five Spitfires but saved four pilots. The warships and the convoy with some losses came into Valetta harbour, bringing at least some of the supplies which Malta needed for existence.

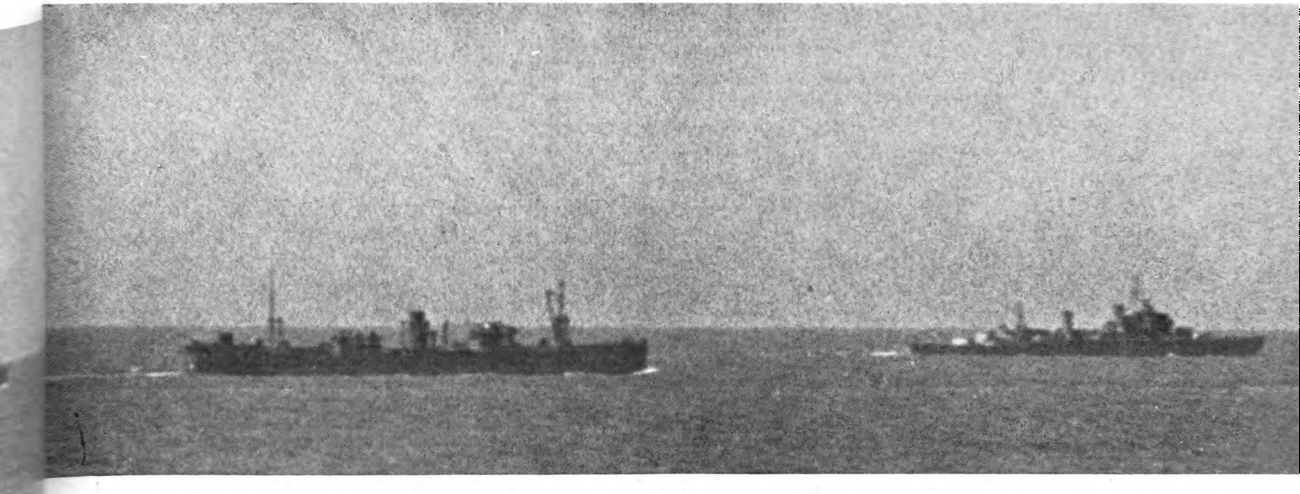
It was over the convoy from the east that the major air-sea battle developed. The merchant vessels in this convoy were guarded by many cruisers and destroyers. They sailed from various ports on June 12th and made successful rendezvous north of Egypt, steaming west. By the morning of the 14th the convoy ran suddenly into great danger. When the ships were in "bomb alley," between Crete and the mainland, about 25 Stukas, some Ju.88s and a dozen Me.109s were reported to be on their way to attack. Air Vice-Marshal Coningham tore away eight Kittyhawks and 15 Tomahawks from the critical desert battle and scrambled them over the convoy. They intercepted the enemy formation north-east of Tobruk, and although they shot down only one Stuka for certain, they forced all the bombers to jettison their bombs harmlessly in the sea. Further bombing attacks were kept up all that day and fought with great determination by Kittyhawks and, later, Beaufighters.

Meanwhile another character had appeared in the cast. Ships of the Italian fleet were putting out from Taranto into the Ionian Sea. Throughout June 14th, Baltimores from Malta swept back and forth over the water looking for them. One Baltimore saw two battleships, four cruisers and eight destroyers about 70 miles south of Taranto, steaming south. Just as darkness was falling, a photographic Spitfire sped across Taranto harbour and confirmed that the main enemy battle fleet had sailed, headed by the Littorio-class battleships.

These reports were sufficient to start the whole air machine into motion, both from Malta and from the African coast, during that short June night and the following day. The Commander-in-Chief, Mediterranean, signalled the convoy to turn east during the small hours of the morning, leaving the waters clear for an engagement between our aircraft and the Italian battle fleet.

Soon after nightfall on June 14th, the crews climbed into three Wellingtons on the bomb-torn runways of Malta and took off to search for the warships. Five more Wellingtons were being prepared on an airfield in the Western Desert to complete the search from the south. They were all airborne by 10 o'clock at night, except one that burst a tyre.

The combined operations room in Alexandria where the air and sea commanders spread their charts beneath shaded electric lights in the silent heat, controlling the ships and the aircraft manœuvring through the night, waited anxiously for news—the brief signal of a sighting report, the result of an attack. They knew where the Italian fleet had last been seen and roughly where it was



me losses, reached Valetta. The enemy lost 43 aircraft destroyed, 22 probably destroyed.

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6—The Struggle for the Sea Routes

AT THIS climacteric of the battle, air power had to be exerted, not only above the dust of the tanks in the desert but over ships at sea. It was necessary to get ships to Malta at whatever risk. Two convoys were therefore dispatched at the same time, one from Gibraltar in the west and the other from Haifa, Port Said and Alexandria in the east. Something more significant developed from these convoys even than supplying Malta. For the first time a full-scale battle was fought between Allied air power and enemy sea power in the Mediterranean—the aircraft against the warship.

It is necessary here to step back a little in time. There were always air campaigns being waged simultaneously in different parts of the Middle East, and they all dovetailed into a complete air war on a single plan. But for clarity they must be described separately.

Since the chief aim of the whole Middle-East war was to gain air control of the Mediterranean sea routes, with all the benefits such a control implies, a considerable air strength had been accumulated to fight over the Mediterranean itself. It worked from two sides, the North African coast and Malta. As the desert war gave us or denied us airfields along the Libyan coast, and as the Luftwaffe's blitz on the Malta airfields waned or waxed, so the power of this air strength increased or declined. In the early days it had consisted of no more than a squadron of Sunderland flying-boats, but gradually came reinforcements. By the spring of 1942 the air force over the sea was considerable in numbers, technically well equipped and efficiently trained.

It included one Wellington squadron of particular interest, which greatly increased our power of hitting ships at sea. What was wanted was an aircraft that could carry at least one torpedo over many hundreds of miles of sea. Since the only long-range bomber then available in the Middle East was the Wellington, one squadron was given the experiment of fitting torpedoes instead of bombs. The squadron was asked to transform an aircraft that normally bombed from a height of many thousands of feet into an aircraft that could deliver torpedo attacks at night from only a few feet above the sea.

It was done, largely by men of that one squadron, with a little help from other engineers, on a sandy airfield in the Canal zone. The engineering side of it alone meant many changes in the Wellington, for when two torpedoes were hung on it the whole balance of the aircraft was upset. Very soon however the squadron produced a torpedo-carrying aircraft that would fly. Then the crews trained themselves to deliver attacks with dummy torpedoes at a small yacht—a difficult technique with which none of them was familiar. All the time, part of the squadron carried on with the normal bombing of Benghazi; yet within three months they had added a long-range torpedo force to the strength of the Middle East. Wing Commander J. H. Chaplin, D.S.O., D.F.C., who commanded the squadron, was the man who shaped this new weapon and scored the first success with it.

Never did the air forces which attempted to control the Mediterranean work in harder circumstances than during the spring of 1942. Even with an advanced landing ground at Bu Amud, actually in front of the desert fighter squadrons, the force based in Egypt under the command of Air Vice-Marshal Sir Leonard H. Slatter, K.B.E., C.B., D.S.C., D.F.C., could barely reach the enemy's main shipping routes from the African coast. At the same time the Luftwaffe was making the heaviest continuous air assault of history on the few airfields that were in range—those of Malta.

The epic of Malta's defence by men of all three Services and by the endurance of the civilians, from the unearthing from packing-cases of four Sea Gladiators in the first days to the climax of 1942, cannot be given justice in such a short account as this. It needs a separate book. The offensive power of Malta, however, the way the island struck back, is an integral part of the Middle East air story.

Malta, an island of only 120 square miles, lay at a distance of 60 miles from the nearest enemy in Sicily, and at that time was some 600 miles from the nearest friend in Cyrenaica. On clear days the coast of Sicily can be seen

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without the help of binoculars from the Maltese cliffs. On this small island are scarcely more than half a dozen compact targets of military significance, the chief being the port of Valetta and the few airfields from which parts of all the sea lanes for the reinforcement of Libya are within bomber range.

On December 19th, 1941, the Luftwaffe had decided to knock out this air threat to supplies which were then vital if Tripolitania were to be saved. In the 13 weeks from February 25th to May 25th there were nearly 11,000 sorties by enemy aircraft against Malta—a sortie is one flight by one aircraft. Rather more than half of them were fighters, the rest bombers. Those three months were the peak for Malta. During them it was decided whether the island would stand or fall.

Yet even under this bombardment the few bombers of the R.A.F. that remained on the cratered airfields, serviced and maintained by ground crews who can read the stories of Dunkirk, Tobruk, Sebastopol and Stalingrad without embarrassment, still struck back at the enemy. Their most successful blow was during the night of March 2/3rd when 16 Wellingtons, taking off and landing as the bombs fell, attacked Palermo harbour where a large supply convoy of ships was assembling for the run to Benghazi. The crews watched a ship of 9,000 tons receive a direct hit and catch fire, and several other fires broke out in the same area. When a reconnaissance aircraft flew over to take photographs it found that the cargo of this ship was being unloaded on to another vessel, that two ships of 6,000 tons—one of which carried a heavy deck cargo—together with another ship of 2,000 tons, had been sunk and lay on the bottom

An aircraft which could carry torpedoes over many hundreds of miles would greatly increase our power of hitting Rommel's supplies at sea. It was devised on a sandy airfield in the Canal zone; long-range, high-level Wellington bombers became torpedo carriers which could attack at night, a few feet above the sea.

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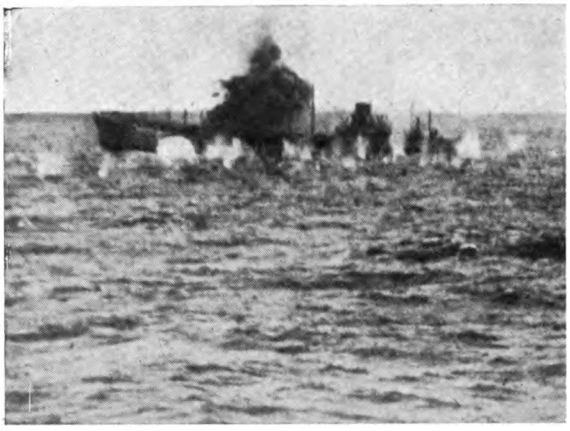
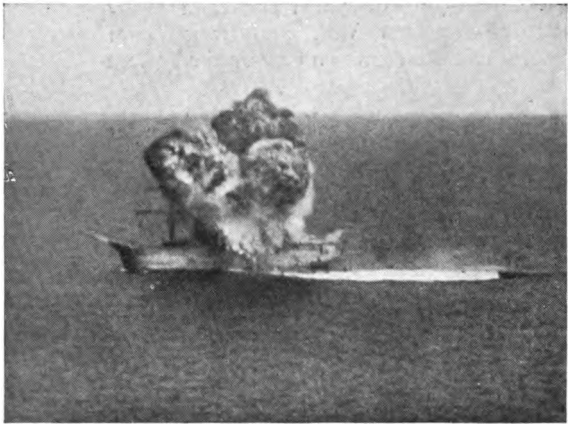


1. Malta struck back throughout the heavy blitz. Bombs and machine-guns sink a tanker off the Tunisian coast.



2. Rommel's oil explodes as a second tanker is attacked by Blenheims off Tunisia. The ship will burn itself out.

3. A torpedo attack by Beauforts stopped this ship and set it on fire. The deck is packed with M.T. for Rommel.

4. The patrol that never ends. An Italian submarine, surprised by a Sunderland, makes a violent turn to port.

5. As the submarine turns, the bombs strike. Cascades of foam rise as high as a church tower.

6. The upheaval subsides, the submarine emerges. Its casing is damaged near the bows, but it still floats.

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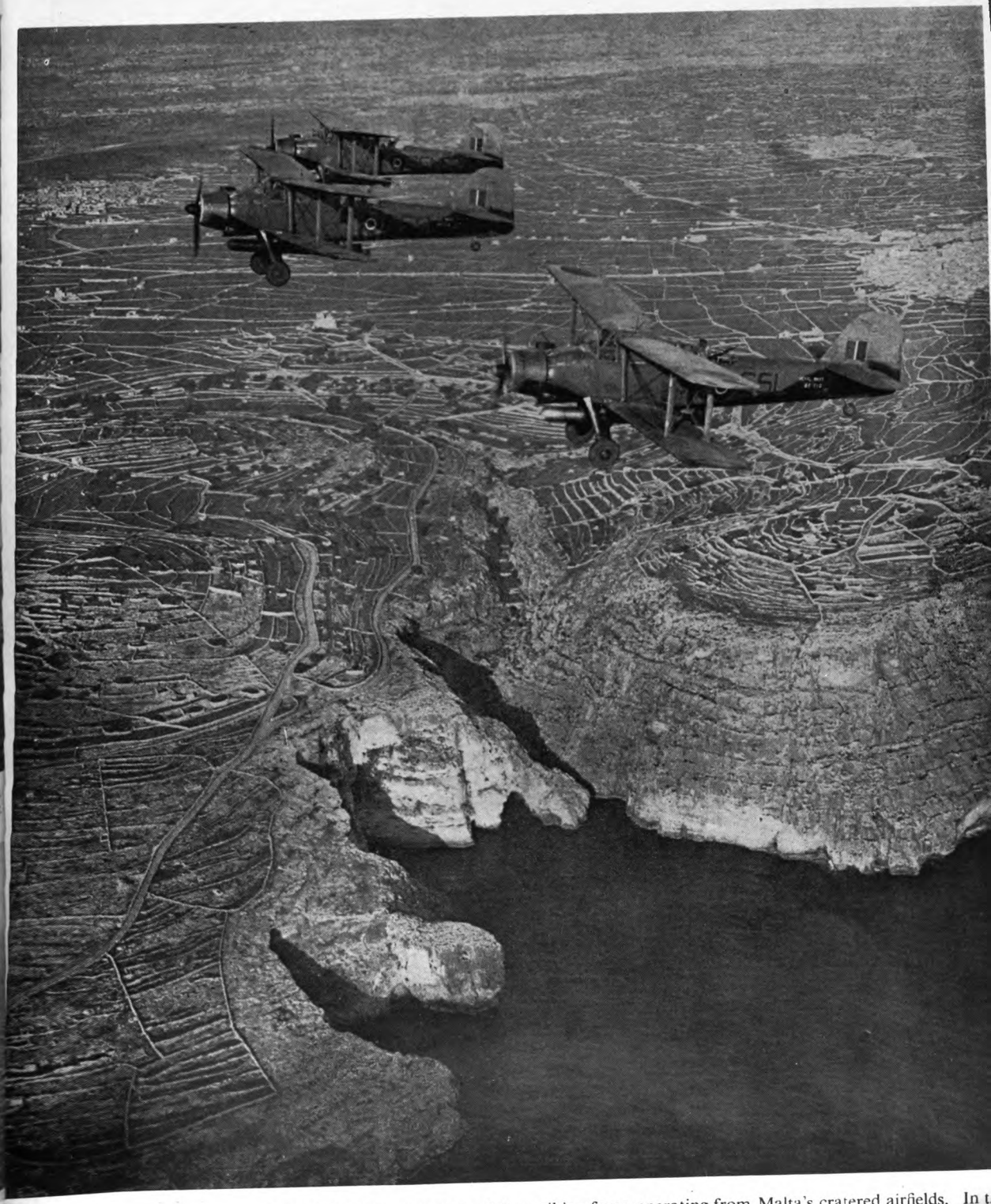

Naval Albacores were part of the striking force operating from Malta's cratered airfields. In t
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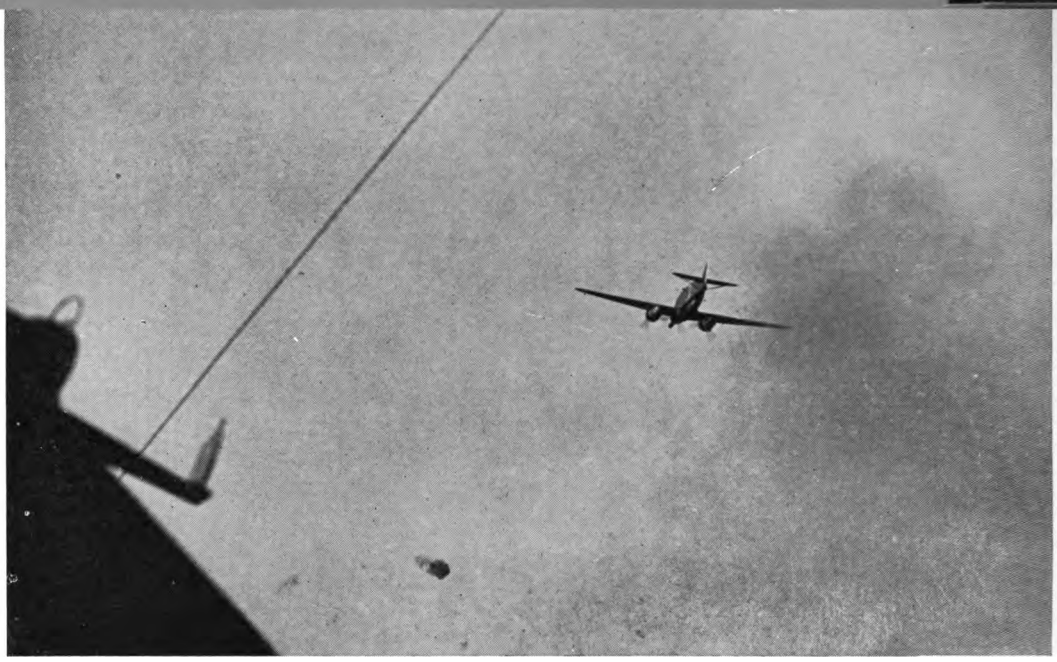


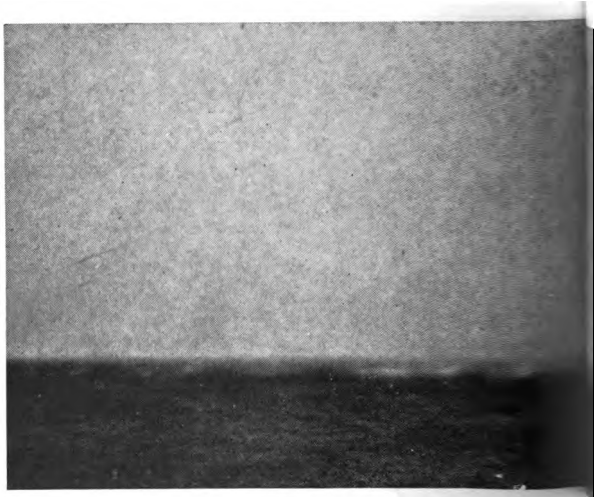
The major attack begins. An enemy torpedo bomber, its torpedo clearly visible beneath the fuselage, passes over a British cruiser during the western convoy battles of June 14th/16th, 1942.

of the harbour with only their superstructure above water.

On the Egyptian mainland, Air Vice-Marshal Slatter's force was concerned with the continual task of protecting Allied merchant vessels which ran along the coast from Alexandria to deliver supplies to Tobruk in order that the Army might be strengthened, or traversed the routes of the eastern Mediterranean along the shores of Egypt, Palestine and Syria. They were all liable to attack, either by bomber or by submarine; and although most of them reached port unharmed, there were some losses, chiefly on the Tobruk run. A large number of Italian submarines were working in the Mediterranean at that time. Patrol aircraft kept watch for them 24 hours a day—the one patrol that never ends, nor will end until the hunt is ended.

The results of the anti-submarine war are the most difficult of all to assess. Its successes are largely kept secret. But it can be said that of the many attacks made at this time on submarines by aircraft, mostly close inshore between Daba and Tobruk, several were successful. Nevertheless we lost some ships to submarines on the Tobruk run, and some more to aircraft in Tobruk harbour itself. Two of them were hospital ships. The "Somersetshire," hit by a submarine's torpedo on April 7th, managed to get into Alexandria under her own power two days later. The 'Ramb IV,' bringing back wounded from Tobruk, was bombed by a single aircraft near Alexandria on May 10th. She was set on fire and a number of the wounded men were killed. After the survivors had been taken off, the hospital ship sank.

Most of these losses were due to the fact that the enemy held more of the commanding airfields than we, and that, although Malta could not be



Two large formations

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beaten even by the big enemy air force which was concentrating on it, the airfields there were largely useless for anything but local defence. As a result the enemy were able to run a good many of their own ships through from Europe to Africa, though not without some losses.

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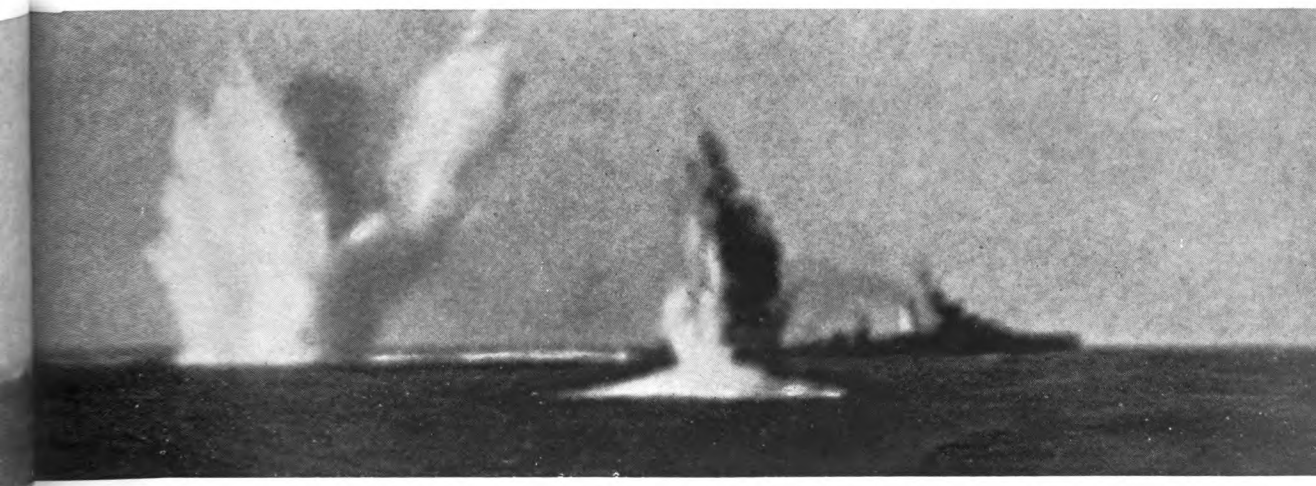

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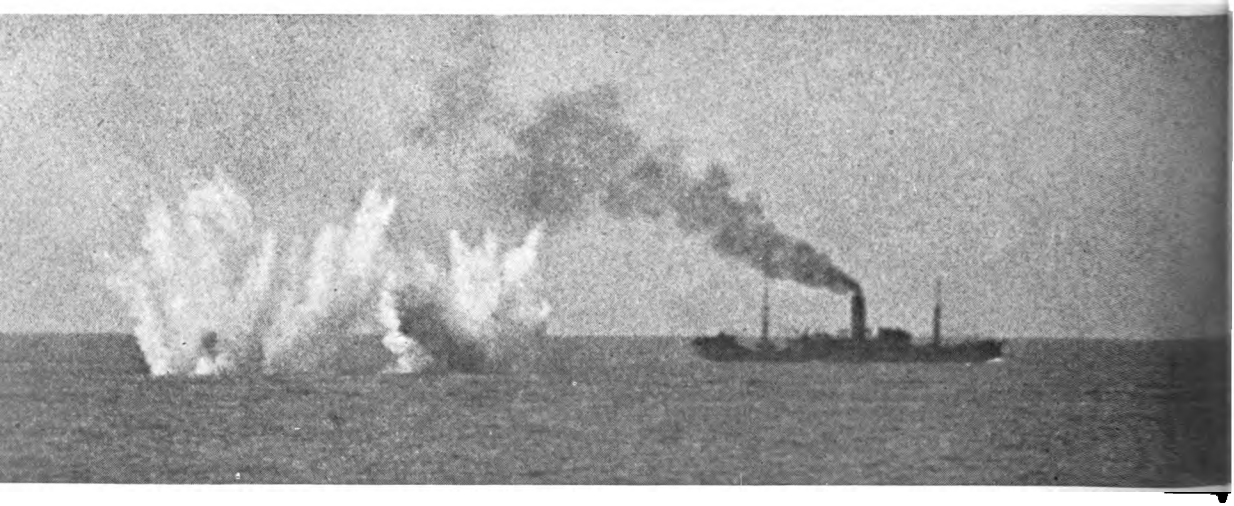

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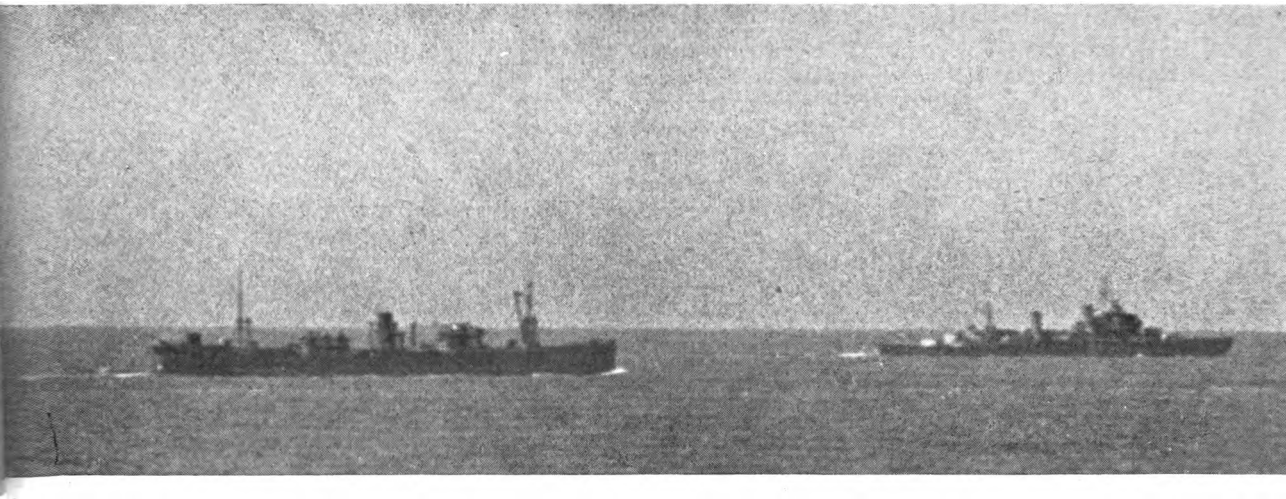

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likely to have reached; they knew where, farther to the east, the convoy that was attempting to reach Malta steamed slowly through the night in the opposite direction, relieved during the darkness of the scream of dive-bombers but peering steadily across the waves for the faint, luminous feather of a periscope's track. They marshalled from widely separated airfields, where cigarette smoke thickened in the small crew-rooms and mechanics stood quietly by the waiting bombers, a force for the attack. Signals were written and passed out. The airfields stirred, propellers swung, the lamps of flarepaths switched on, one by one the bombers took off.

Malta had already sent a second force of Wellingtons, carrying torpedoes, to search the central waters of the Ionian Sea, striving for the glimpse of a ship on the dark water. In the early hours of the morning they found the battle fleet, nearer the coast of Greece than that of Sicily, steaming south. The Wellingtons circled it, preparing to run across and launch torpedoes. The enemy destroyers wheeled swiftly round the battleships and cruisers, laying a thick smoke screen through which some of the Wellingtons managed to attack, with what result they could not see. They reported only that there was a glow on the water beneath the clouds of smoke.

Now it was urgent to direct the strongest possible attack against the fleet. If it were not checked, it might overtake the convoy which had been turned to the east. There seemed scant hope of getting any of the ships through to Malta. It was of first importance to save them.

More signals passed from the combined operations room in Alexandria to the airfields. Down near the Suez Canal, American crews of the Halverson Detachment took off in their Liberators, aiming through the darkness towards the north-west. Some hours later a force of torpedo-carrying Beauforts of the R.A.F., led by a reconnaissance Maryland, took off from an airfield in the desert. Unfortunately it was no longer possible to use Bu Amud, because the land battle was swinging against us. The Beauforts therefore had to fly so much farther that it was known they would be unable to return to Egypt. They were instructed to land at Malta after the attack. It was hoped that, by careful timing, the Beauforts would arrive over the enemy fleet at the same moment as the American Liberators which had taken off several hours before.

While these two forces were in flight outwards from Egypt, Malta was striking again at the Italian fleet, this time with Beauforts. It was light when they arrived, and the guns of the ships put up a heavy barrage against them. The Beauforts flew in low, releasing their torpedoes. One struck a destroyer of the outer screen. It listed heavily. Two others sped on and struck a battleship, damaging but not sinking it. The Beauforts circled through the curtains of shellfire and all returned safely to Malta. One Beaufort,

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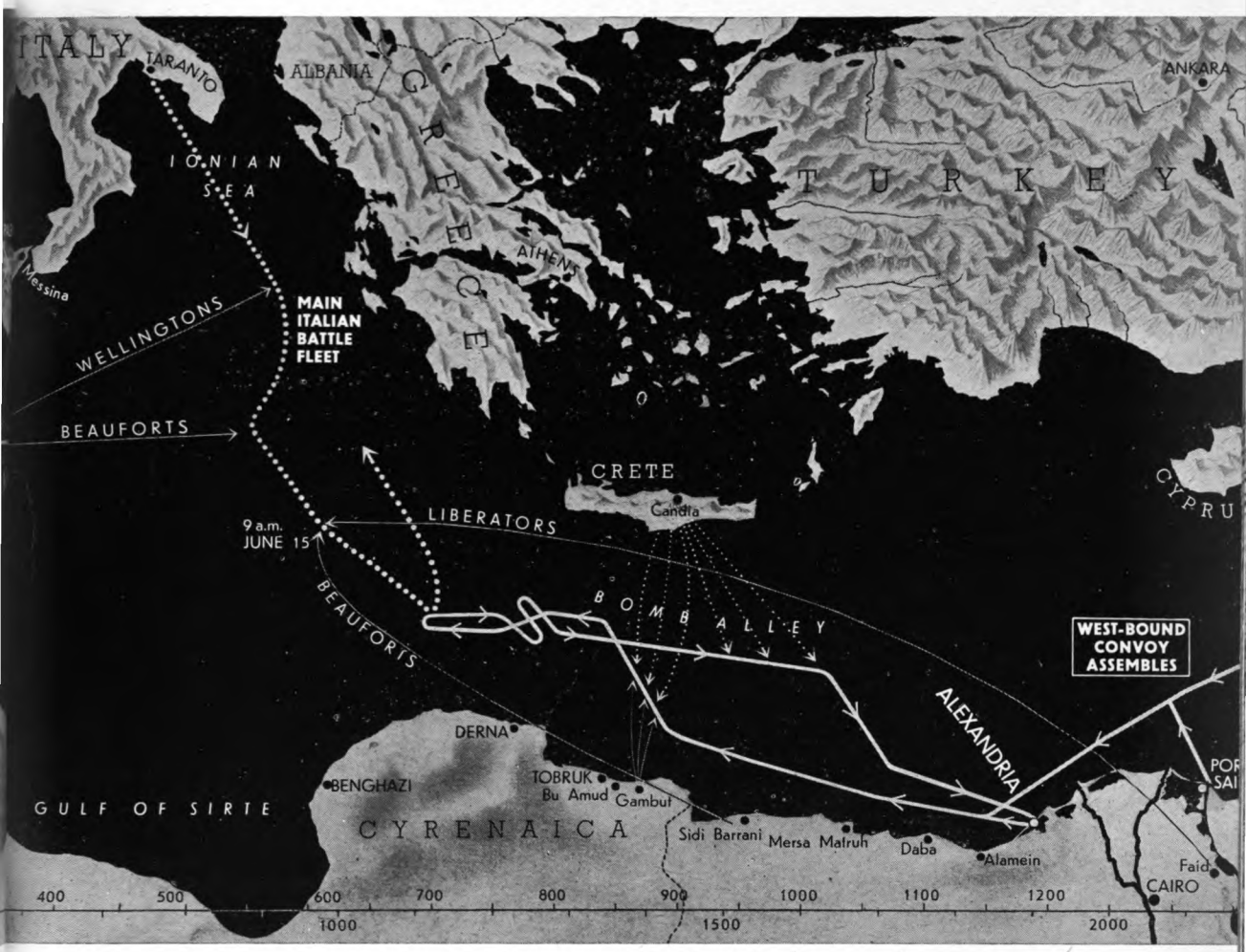

Air power *v.* Sea power : a trial of strength. Two testing, hard-fought actions, waged round convoys to Malta when the air-sea struggle in the Mediterranean was at its height. Thin lines represent R.A.F. operations, thin dotted lines air attacks by the enemy.

getting separated from the formation on the outward journey, arrived alone over the battle fleet. It nevertheless went in alone to the attack through the concentrated fire of the whole fleet, and launched its torpedo at a battleship.

At dawn on June 15th the two striking-forces from Egypt were both still flying over the sea, the Liberators at a great height, the Beauforts close down on the water, separated by many miles from each other. Spread out in a screen ahead of them were all the sea-reconnaissance aircraft of the Middle East, searching for the exact position of the warships. By early morning two of them had sighted all the warships that were believed to be at sea. By then the ships had worked well down into the centre of the Mediterranean north of the Gulf of Sirte. There were in all two battleships, three cruisers and 11 destroyers, split into two forces, one large and one small. It was the larger force around the battleships that was to be attacked.

Soon after 9 o'clock in the morning the

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Liberators sighted the target. They ran across at a good height, the bombardiers adjusting bombsights which can place a bomb with remarkable accuracy and were to make a considerable difference to the Middle East war. It was one of the earliest battles which the American Liberators had fought and their first notable success. They scored four direct hits on a battleship and a cruiser, and a number of misses close enough to be likely to do some damage to other ships. It was thought however that these hits had done no more than superficial damage not affecting the main structure of the ships. On the way home the Liberators shot down an Me.110.

Even as the Liberators were dropping their bombs, their crews could see, close down on the water, the Beauforts flying in to release their torpedoes. At a distance of several hundreds of miles over the sea, starting from airfields hundreds of miles apart at an interval of several hours, with part of the flight in darkness, the hoped-for perfect synchronisation between the Liberators and the Beauforts had been achieved.

Of the 12 Beauforts which had taken off from the desert landing ground, only five had arrived. On the way they had been attacked by Messerschmitts and two of them shot down into the sea. Five more were forced to drop out of the flight after the combat, for their crews had been wounded, their mechanism damaged; all these returned safely to Egypt, save one which was last seen heading towards Malta. With his depleted force the leader, Wing Commander A. J. Mason, D.F.C., nevertheless made a torpedo attack through the ferocity of the A.A. barrage of the battle fleet. They scored one certain hit on a cruiser and one probable on a battleship, then flew safely to Malta. The attack was made easier by the Italian warships themselves which, bombed from above and torpedoed from sea level, turned their broadsides to the Beauforts in a confusion in which two of the destroyers seemed in great danger of colliding.

For the rest of the day the air task was to shadow the battle fleet. At first it continued to sail south-east, but by late afternoon it had suddenly turned to the north-west. Another force of torpedo Wellingtons sped it on its way with one more hit on a battleship through a smoke-screen at dusk, and by June 17th an aircraft photographed the fleet back at Taranto, battered and damaged, and short of one cruiser and one destroyer which had sunk. It had suffered part of this damage from submarines of the Royal Navy which, of course, were equally as vigilant as the air forces.

With this threat out of the way, it had to be decided in Alexandria whether or not the convoy could still make Malta. At first the fastest merchant vessels were turned west again, but soon it was decided to recall all of them to Alexandria. During the period of delay, in which they had been continually attacked from the air with some losses, the ships had spent so much fuel and ammunition that it was doubtful if they could face the aerial bombardment which would await them in the approaches to Malta itself.

It is difficult to assess which side won this battle. The convoy part of it was a failure; of that there can be no question. The ships did not reach Malta, several of them were lost to bombers and submarines, and the fighter force which we could spare from the desert battle to protect them also had heavy losses, although it inflicted equally heavy losses on the enemy aircraft. The Beaufighters suffered in particular. One crew had an extraordinary adventure. They were shot down into the sea with all hatches closed. The observer got out on the surface, but the pilot sank with his aircraft. He could not undo the hatch and had given himself up to death. He sank so far that pressure burst open the hatch and brought him to the surface in an air bubble, at the same time tearing from the wing a petrol tank almost empty of fuel. The pilot put the observer, a poor swimmer, on to the petrol tank. He pushed him ashore in a swim that lasted for 10 hours.

The significance of this operation was not truly the passage of the convoy, however, but the battle it brought about between the Italian fleet and the air power of the Middle East. Of the whole fleet only one cruiser and one destroyer were actually sunk, but air power combined with a submarine attack which scored one hit had forced a powerful surface fleet to put back into harbour without reaching its objective. The air power employed was not strong, since it had to be diverted from the most critical days of the Western Desert battle. The repulse of our convoy by the Luftwaffe and of the Italian fleet by the R.A.F. were both reassertions that the control of the Mediterranean Sea lay in the power of aircraft based on its shores.

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R.A.F. rendezvous. Crews of the Liberators (*above*) and Beauforts detailed to attack the Italian fleet simultaneously. They flew from airfields hundreds of miles apart, starting at an interval of several hours, for some time in darkness and through attack by enemy fighters. As the Liberators were dropping their bombs, their crews saw, close down on the water, the Beauforts flying in to release their torpedoes.

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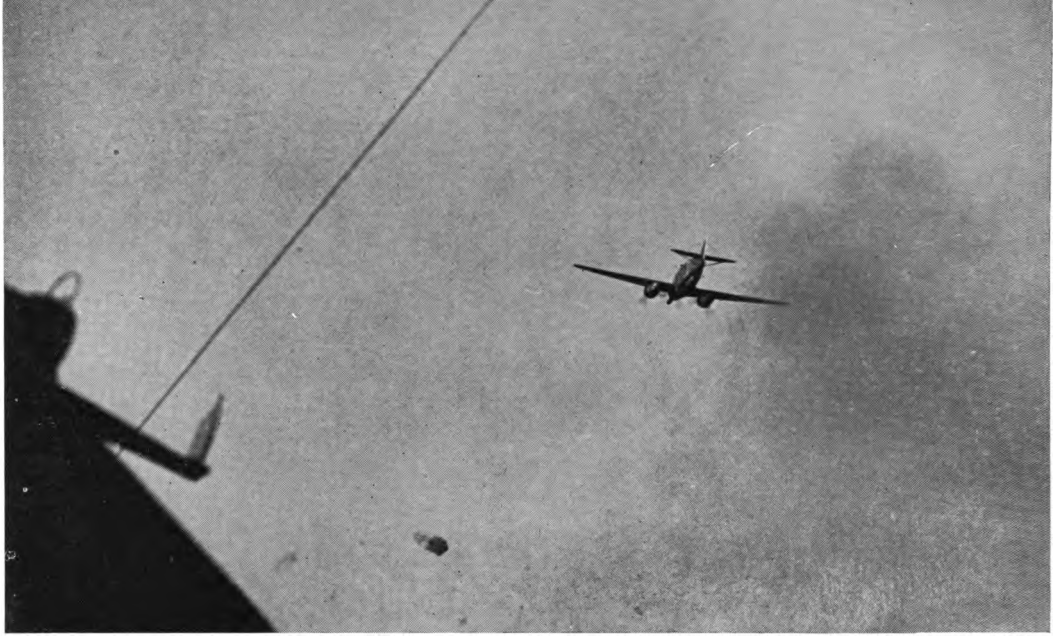

The major attack begins. An enemy torpedo bomber, its torpedo clearly visible beneath the fuselage, passes over a British cruiser during the western convoy battles of June 14th/16th, 1942.

of the harbour with only their superstructure above water.

On the Egyptian mainland, Air Vice-Marshal Slatter's force was concerned with the continual task of protecting Allied merchant vessels which ran along the coast from Alexandria to deliver supplies to Tobruk in order that the Army might be strengthened, or traversed the routes of the eastern Mediterranean along the shores of Egypt, Palestine and Syria. They were all liable to attack, either by bomber or by submarine; and although most of them reached port unharmed, there were some losses, chiefly on the Tobruk run. A large number of Italian submarines were working in the Mediterranean at that time. Patrol aircraft kept watch for them 24 hours a day—the one patrol that never ends, nor will end until the hunt is ended.

The results of the anti-submarine war are the most difficult of all to assess. Its successes are largely kept secret. But it can be said that of the many attacks made at this time on submarines by aircraft, mostly close inshore between Daba and Tobruk, several were successful. Nevertheless we lost some ships to submarines on the Tobruk run, and some more to aircraft in Tobruk harbour itself. Two of them were hospital ships. The "Somersetshire," hit by a submarine's torpedo on April 7th, managed to get into Alexandria under her own power two days later. The 'Ramb IV,' bringing back wounded from Tobruk, was bombed by a single aircraft near Alexandria on May 10th. She was set on fire and a number of the wounded men were killed. After the survivors had been taken off, the hospital ship sank.

Most of these losses were due to the fact that the enemy held more of the commanding airfields than we, and that, although Malta could not be

Two large formations

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beaten even by the big enemy air force which was concentrating on it, the airfields there were largely useless for anything but local defence. As a result the enemy were able to run a good many of their own ships through from Europe to Africa, though not without some losses.

On April 14th it was known that an important enemy convoy was at sea. Owing to the blitz on Malta, several Marylands and Blenheims had to be briefed to search for the convoy from Bu Amud in Cyrenaica. The crews knew that, if they sighted and shadowed the ships, petrol consumption would compel them to land in Malta under the heaviest enemy fighter sweeps. One of the Marylands, piloted by Flying Officer J. B. Halbert, sighted the convoy a short distance from the east coast of Sicily, steaming in the direction of Tripoli. Its importance was evident from the fact that two of the four merchant vessels were of 10,000 tons each, with an escort of five warships. The Maryland shadowed the convoy until its petrol was nearly exhausted, sending from time to time clear and valuable reports of its progress. It then tried to make Malta, but was shot down four miles from the coast, all the crew being lost.

The information signalled by the Maryland was the basis of an attack by eight torpedo-carrying Beauforts and four escorting Beaufighters. This force was also compelled to take off from Bu Amud to attack a target at a distance of 500 miles over the sea, with the knowledge that a landing would then have to be attempted at Malta. On the outward journey the leading Beaufighter shot down two Me.110s and damaged a Ju.88. Owing to a mischance the Beauforts overshot the target without having seen the ships, although the Beaufighters had sighted them. A little time was wasted while the Beauforts came round to search for the ships again, during which a force of more than 100 Me.109s was taking off from the Sicilian coast, 120 nautical miles distant. It was through this fighter screen, coupled with heavy A.A. fire from the ships, that Flight Lieutenant J. M. Lander, D.F.C., led the Beauforts in a low-level torpedo attack. Three hits were scored on the merchant vessels, including both those of 10,000 tons, and a destroyer which was hit is believed to have sunk.

While the attack was still in progress, two of the Beauforts were shot down. The remainder, fighting off innumerable Messerschmitts, turned towards Malta, over which yet more enemy aircraft were keeping standing fighter patrols. Within sighting distance of the island three more Beauforts were shot down. Some of the crews saved themselves by swimming ashore, some were picked up by the air-sea rescue launches of Malta, some were killed by Messerschmitts which dived and shot them as they floated helplessly in the sea. The other Beauforts reached Malta safely, though badly damaged. The

of dive-bombers attacked the convoy before dusk. Bomb-bursts tower like icebergs above a British destroyer escort.

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leader which, with its gun turret out of action, had dodged some of its pursuers by flying close under the cliffs of Malta, landed without hydraulics, with the rudder stripped of fabric for three-quarters of its length, and with the port wing damaged by striking the water when a cannon shell forced down an aileron.

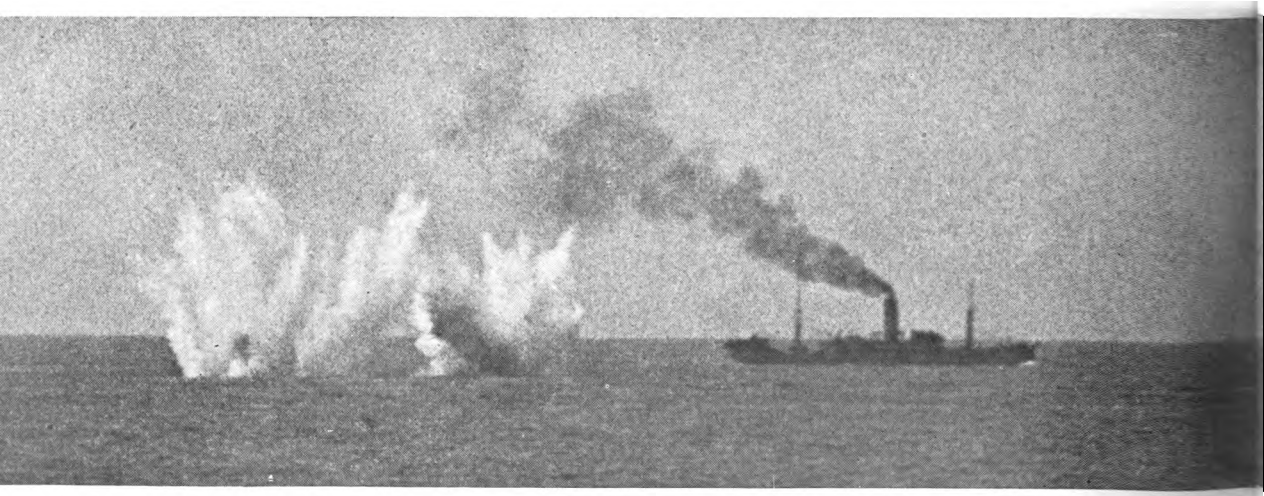
All this gives only an indication of the intensity of the air war which was continually waged over the Mediterranean. It reached its first peak in the aircraft-*versus*-warship battle, which developed during the very heat of Rommel's land attack in the Western Desert, described in the previous chapter. It emerged from the protection of those two British convoys which we were forced to send towards besieged Malta in June 1942—one from the western end of the Mediterranean, and one from the eastern.

The story of the Gibraltar convoy is soon told. This convoy of merchant vessels, with a strong naval escort including a battleship, passed Gibraltar on June 13th without incident on that day or the next, except for an ineffective bombing attack. At last light on June 14th, however, a Spitfire on reconnaissance reported two cruisers and four destroyers leaving Palermo. Soon after dawn the following day these warships opened fire and the escort signalled for an air attack to be made on them from Malta.

As will be seen, so much was going on farther east in the Mediterranean that there was a scant force of strike aircraft on the island at the time—two Beauforts with crews far from experienced, and four naval Albacores. These aircraft were assembled and sent out against the Italian warships with a cover of 16 Spitfires to hold off a swarm of Messerschmitts. The Beauforts led the torpedo attack, hitting the leading cruiser and setting her on fire. After them came the Albacores which hit and severely damaged one of the escorting destroyers. The Italian surface force withdrew without any further attempt to sink the convoy. Albacores had another try for the warships during the afternoon. Once again they scored two hits on a cruiser and a probable on a destroyer.

This phase of the aircraft-warship battle was definitely our victory, for at the cost of one Albacore, considerable damage had been done to the Italian ships, whereas our own were untouched. But within an hour or so the major attack developed, this time from the air. Before dusk two large formations of escorted dive-bombers had inflicted damage which slowed up the whole convoy considerably during the night. Whereas it should have been only 110 miles from Malta next morning, within range of the protection of Spitfires, in fact it was still 140 miles away; the Spitfires covered it nevertheless, straining their petrol endurance. Once under the protection of their guns the ships were damaged no more.

The Spitfires and a few Beaufighters fought all day for the sky above, shooting down 13, probably



The convoy fights through. After three days of incessant sea and air fighting, the convoy, with

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destroying four and damaging another 13 enemy aircraft which still clung to the attack. We lost five Spitfires but saved four pilots. The warships and the convoy with some losses came into Valetta harbour, bringing at least some of the supplies which Malta needed for existence.

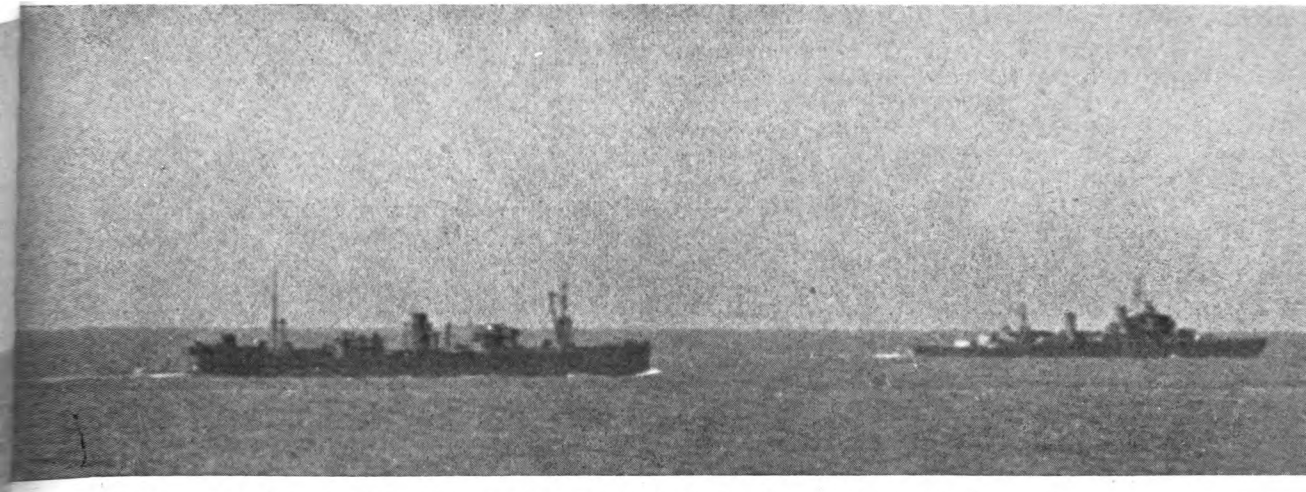
It was over the convoy from the east that the major air-sea battle developed. The merchant vessels in this convoy were guarded by many cruisers and destroyers. They sailed from various ports on June 12th and made successful rendezvous north of Egypt, steaming west. By the morning of the 14th the convoy ran suddenly into great danger. When the ships were in "bomb alley," between Crete and the mainland, about 25 Stukas, some Ju.88s and a dozen Me.109s were reported to be on their way to attack. Air Vice-Marshal Coningham tore away eight Kittyhawks and 15 Tomahawks from the critical desert battle and scrambled them over the convoy. They intercepted the enemy formation north-east of Tobruk, and although they shot down only one Stuka for certain, they forced all the bombers to jettison their bombs harmlessly in the sea. Further bombing attacks were kept up all that day and fought with great determination by Kittyhawks and, later, Beaufighters.

Meanwhile another character had appeared in the cast. Ships of the Italian fleet were putting out from Taranto into the Ionian Sea. Throughout June 14th, Baltimores from Malta swept back and forth over the water looking for them. One Baltimore saw two battleships, four cruisers and eight destroyers about 70 miles south of Taranto, steaming south. Just as darkness was falling, a photographic Spitfire sped across Taranto harbour and confirmed that the main enemy battle fleet had sailed, headed by the Littorio-class battleships.

These reports were sufficient to start the whole air machine into motion, both from Malta and from the African coast, during that short June night and the following day. The Commander-in-Chief, Mediterranean, signalled the convoy to turn east during the small hours of the morning, leaving the waters clear for an engagement between our aircraft and the Italian battle fleet.

Soon after nightfall on June 14th, the crews climbed into three Wellingtons on the bomb-torn runways of Malta and took off to search for the warships. Five more Wellingtons were being prepared on an airfield in the Western Desert to complete the search from the south. They were all airborne by 10 o'clock at night, except one that burst a tyre.

The combined operations room in Alexandria where the air and sea commanders spread their charts beneath shaded electric lights in the silent heat, controlling the ships and the aircraft manœuvring through the night, waited anxiously for news—the brief signal of a sighting report, the result of an attack. They knew where the Italian fleet had last been seen and roughly where it was



some losses, reached Valetta. The enemy lost 43 aircraft destroyed, 22 probably destroyed.

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likely to have reached; they knew where, farther to the east, the convoy that was attempting to reach Malta steamed slowly through the night in the opposite direction, relieved during the darkness of the scream of dive-bombers but peering steadily across the waves for the faint, luminous feather of a periscope's track. They marshalled from widely separated airfields, where cigarette smoke thickened in the small crew-rooms and mechanics stood quietly by the waiting bombers, a force for the attack. Signals were written and passed out. The airfields stirred, propellers swung, the lamps of flarepaths switched on, one by one the bombers took off.

Malta had already sent a second force of Wellingtons, carrying torpedoes, to search the central waters of the Ionian Sea, striving for the glimpse of a ship on the dark water. In the early hours of the morning they found the battle fleet, nearer the coast of Greece than that of Sicily, steaming south. The Wellingtons circled it, preparing to run across and launch torpedoes. The enemy destroyers wheeled swiftly round the battleships and cruisers, laying a thick smoke screen through which some of the Wellingtons managed to attack, with what result they could not see. They reported only that there was a glow on the water beneath the clouds of smoke.

Now it was urgent to direct the strongest possible attack against the fleet. If it were not checked, it might overtake the convoy which had been turned to the east. There seemed scant hope of getting any of the ships through to Malta. It was of first importance to save them.

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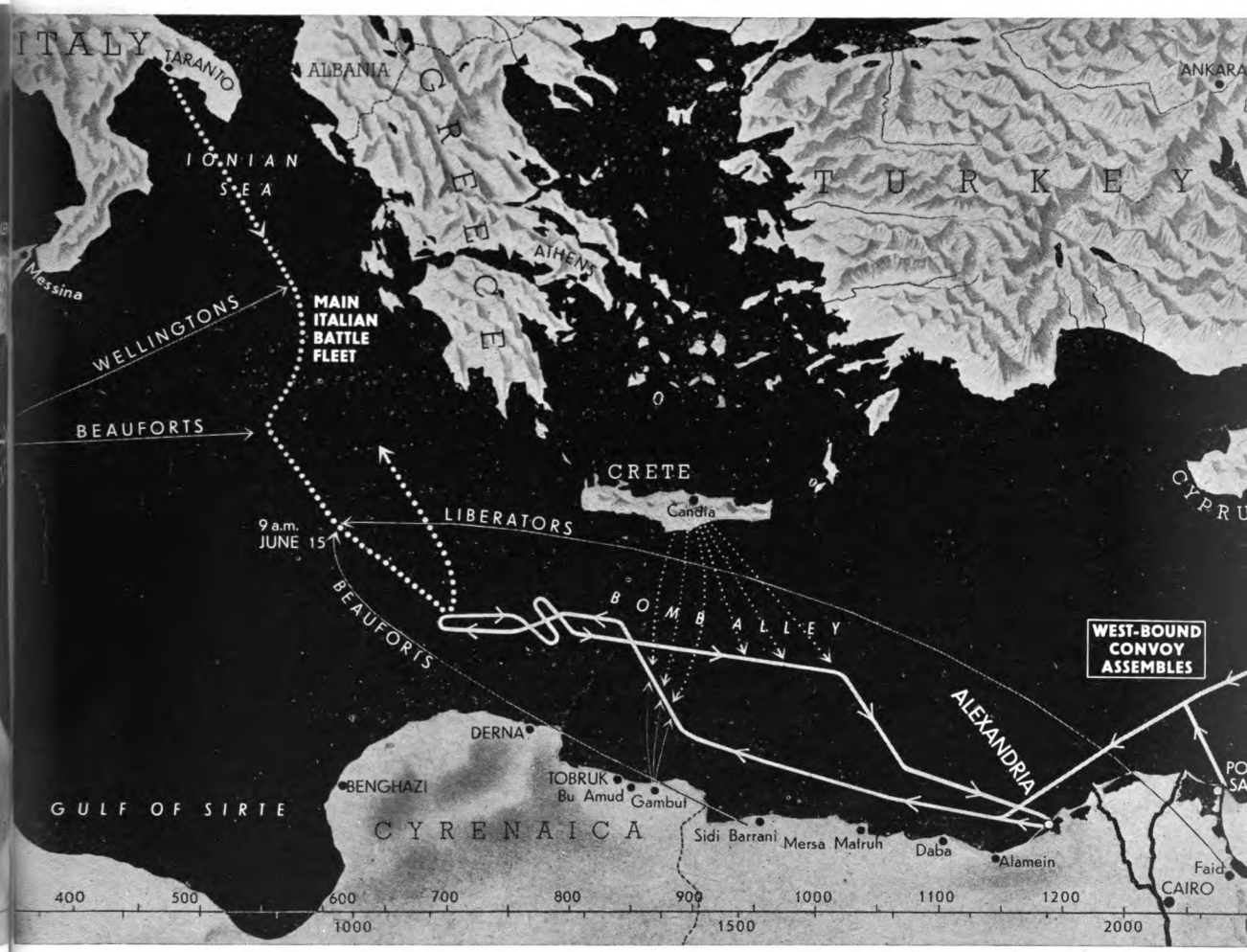

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R.A.F. rendezvous. Crews of the Liberators (*above*) and Beauforts detailed to attack the Italian fleet simultaneously. They flew from airfields hundreds of miles apart, starting at an interval of several hours, for some time in darkness and through attack by enemy fighters. As the Liberators were dropping their bombs, their crews saw, close down on the water, the Beauforts flying in to release their torpedoes

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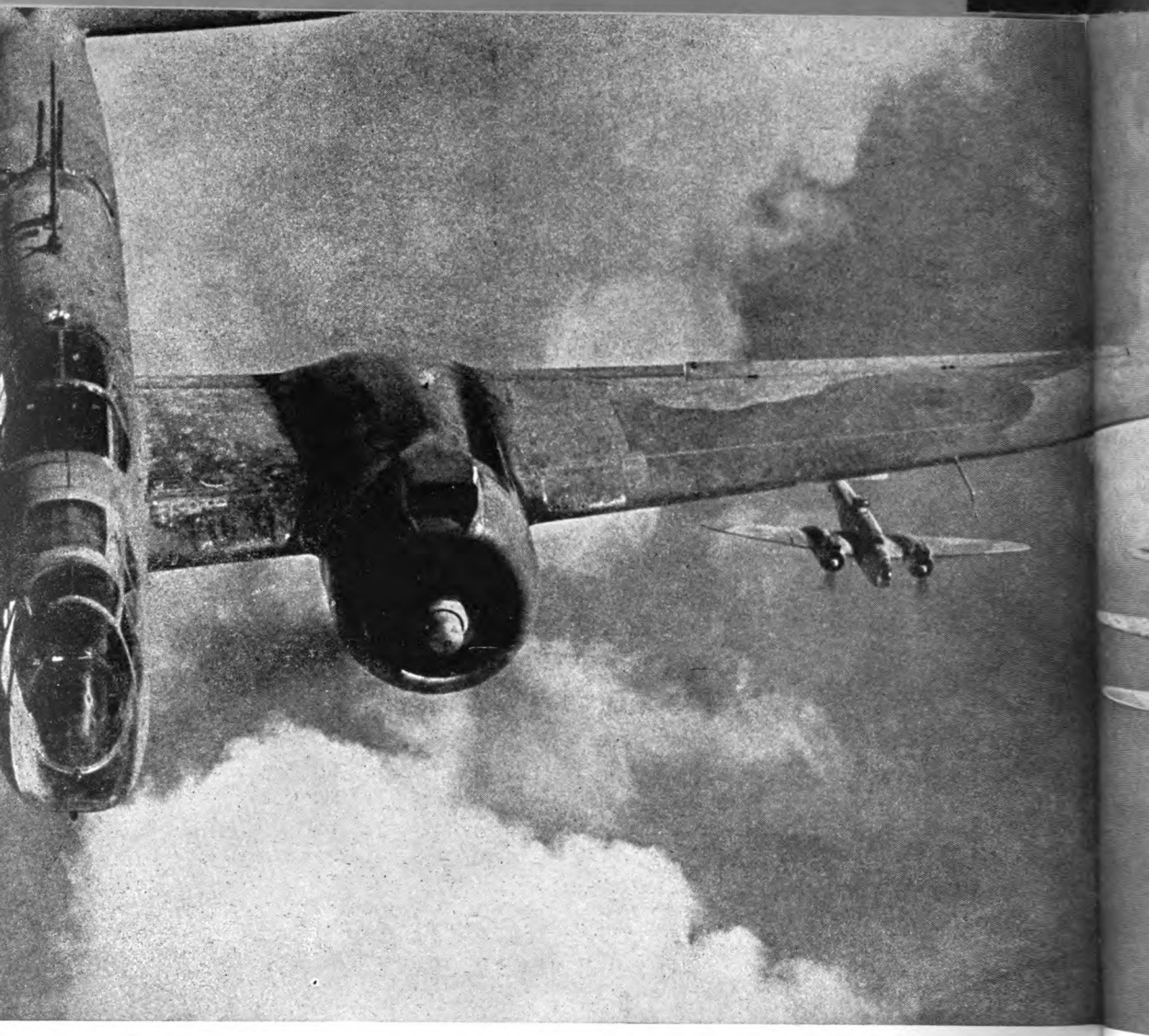

7—The Shield above the Army

WHILE THESE inconclusions were being tried at sea, the battle was failing us in the desert. On June 15th the German armour drove swiftly again to the east, taking Belhamid and leaning on Sidi Rezegh—that luckless stretch of barrenness destined for tank battles. It is necessary here to be provident of superlatives to describe what the Bostons and the Kittyhawks did to check the enemy advance; they will be needed later. Just say that men, who had bombed and fought all day and each day for three weeks, now bombed and fought the harder; that the sand-wake of fighters taking off drifted across the desert more often, the intervals between the drone of bomber engines lessened; that men holding control columns steady in the air and men gripping spanners on the ground wielded them for longer hours, more vigorously. The tent which

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housed the operations control on the Bostons landing ground was crowded from first to last light with crews coming in, crews going out, sand-plastered men, unwashed, unshaven and untiring, calmly discussing with each other some point of tactics, reporting some observed happening on the desert below. Standing back a little from the scene, one of them summed it up by saying it reminded him of a marquee at a busy motor-race meeting—if only, he added wistfully, there were some champagne.

All this effort on the ground and in the air poured down on the advancing German columns the heaviest weight of bombs to which they had so far been subjected in the desert. It did much to damage them; it slowed down their advance, but it could not halt it. By June 17th the Germans held Sidi Rezegh, their armoured cars drove north to cut the coastal road, the defenders of Acroma and El Adem were forced to withdraw into the fortress of Tobruk.

Late that afternoon a formation of Bostons, which seemed just to have taken off, came circling back round Baheira landing ground. Men on the ground looked up with surprise, wondering why they had cut short their raid. They had not cut it short; their bomb racks were empty. The crews came over to the operations tent to report that an enemy column was scarcely more than five minutes' flying time distant. They guessed it might reach the airfield within an hour. It was clear that the squadrons would have to move back.

The foremost fighter squadrons had indeed already moved that afternoon from the Gambut airfields to Sidi Azeiz. Before they went, they delivered one surprise assault that in itself saved the Allied retreat from any sort of interference by the Luftwaffe.

Reconnaissance had shown that the Messerschmitt squadrons had been moved forward to Gazala, obviously in anticipation of days of murderous ground-strafing as our columns bunched to get back through the minefields and wire of the frontier. Just before dusk Wing Commander H. C. Mayers, D.S.O., D.F.C., led the Kittybombers suddenly back and forth over Gazala, bombing and then machine-gunning. They knocked out more than a score of Messerschmitts where they stood, not destroying them all, but damaging them sufficiently to put them out of action for some few days. Baltimore bombers of the R.A.F. went over at dawn the next day without fighter escort to add to the damage. As a result the enemy fighter activity was nil for the next five days—precisely the respite that the ground forces needed to retreat in good order and with small loss.

When the squadrons had to retreat, they went fighting and they went proudly. They also went methodically. On the night of June 17th/18th there was one fighter wing together with about half of the Bostons on Baheira airfield, now the

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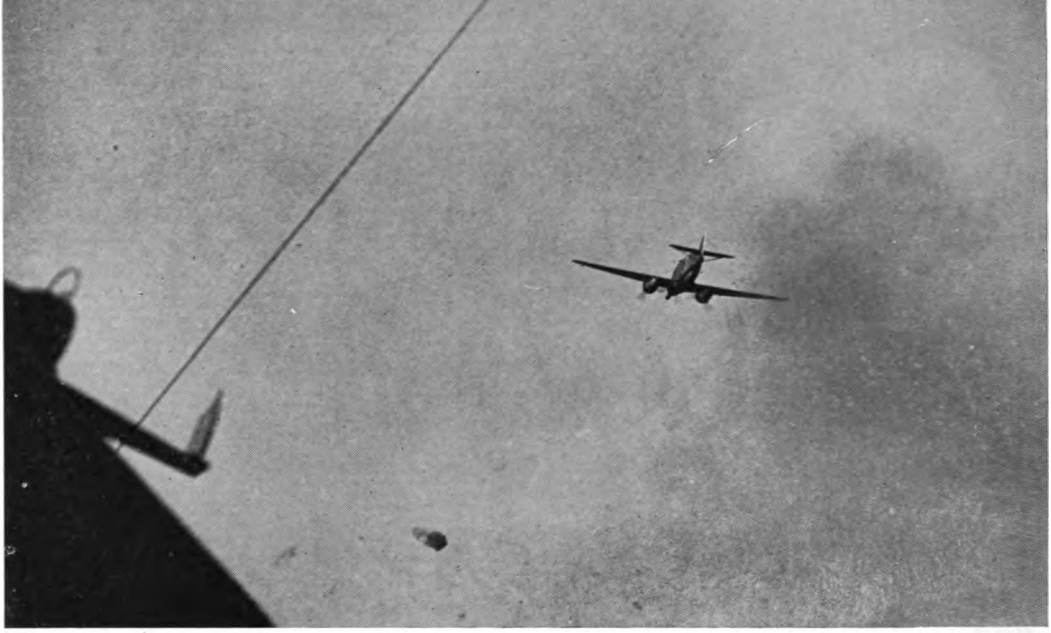

The major attack begins. An enemy torpedo bomber, its torpedo clearly visible beneath the fuselage, passes over a British cruiser during the western convoy battles of June 14th/16th, 1942.

of the harbour with only their superstructure above water.

On the Egyptian mainland, Air Vice-Marshal Slatter's force was concerned with the continual task of protecting Allied merchant vessels which ran along the coast from Alexandria to deliver supplies to Tobruk in order that the Army might be strengthened, or traversed the routes of the eastern Mediterranean along the shores of Egypt, Palestine and Syria. They were all liable to attack, either by bomber or by submarine; and although most of them reached port unharmed, there were some losses, chiefly on the Tobruk run. A large number of Italian submarines were working in the Mediterranean at that time. Patrol aircraft kept watch for them 24 hours a day—the one patrol that never ends, nor will end until the hunt is ended.

The results of the anti-submarine war are the most difficult of all to assess. Its successes are largely kept secret. But it can be said that of the many attacks made at this time on submarines by aircraft, mostly close inshore between Daba and Tobruk, several were successful. Nevertheless we lost some ships to submarines on the Tobruk run, and some more to aircraft in Tobruk harbour itself. Two of them were hospital ships. The "Somersetshire," hit by a submarine's torpedo on April 7th, managed to get into Alexandria under her own power two days later. The 'Ramb IV,' bringing back wounded from Tobruk, was bombed by a single aircraft near Alexandria on May 10th. She was set on fire and a number of the wounded men were killed. After the survivors had been taken off, the hospital ship sank.

Most of these losses were due to the fact that the enemy held more of the commanding airfields than we, and that, although Malta could not be

Two large formations

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beaten even by the big enemy air force which was concentrating on it, the airfields there were largely useless for anything but local defence. As a result the enemy were able to run a good many of their own ships through from Europe to Africa, though not without some losses.

On April 14th it was known that an important enemy convoy was at sea. Owing to the blitz on Malta, several Marylands and Blenheims had to be briefed to search for the convoy from Bu Amud in Cyrenaica. The crews knew that, if they sighted and shadowed the ships, petrol consumption would compel them to land in Malta under the heaviest enemy fighter sweeps. One of the Marylands, piloted by Flying Officer J. B. Halbert, sighted the convoy a short distance from the east coast of Sicily, steaming in the direction of Tripoli. Its importance was evident from the fact that two of the four merchant vessels were of 10,000 tons each, with an escort of five warships. The Maryland shadowed the convoy until its petrol was nearly exhausted, sending from time to time clear and valuable reports of its progress. It then tried to make Malta, but was shot down four miles from the coast, all the crew being lost.

The information signalled by the Maryland was the basis of an attack by eight torpedo-carrying Beauforts and four escorting Beaufighters. This force was also compelled to take off from Bu Amud to attack a target at a distance of 500 miles over the sea, with the knowledge that a landing would then have to be attempted at Malta. On the outward journey the leading Beaufighter shot down two Me.110s and damaged a Ju.88. Owing to a mischance the Beauforts overshot the target without having seen the ships, although the Beaufighters had sighted them. A little time was wasted while the Beauforts came round to search for the ships again, during which a force of more than 100 Me.109s was taking off from the Sicilian coast, 120 nautical miles distant. It was through this fighter screen, coupled with heavy A.A. fire from the ships, that Flight Lieutenant J. M. Lander, D.F.C., led the Beauforts in a low-level torpedo attack. Three hits were scored on the merchant vessels, including both those of 10,000 tons, and a destroyer which was hit is believed to have sunk.

While the attack was still in progress, two of the Beauforts were shot down. The remainder, fighting off innumerable Messerschmitts, turned towards Malta, over which yet more enemy aircraft were keeping standing fighter patrols. Within sighting distance of the island three more Beauforts were shot down. Some of the crews saved themselves by swimming ashore, some were picked up by the air-sea rescue launches of Malta, some were killed by Messerschmitts which dived and shot them as they floated helplessly in the sea. The other Beauforts reached Malta safely, though badly damaged. The

dive-bombers attacked the convoy before dusk. Bomb-bursts tower like icebergs above a British destroyer escort.

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leader which, with its gun turret out of action, had dodged some of its pursuers by flying close under the cliffs of Malta, landed without hydraulics, with the rudder stripped of fabric for three-quarters of its length, and with the port wing damaged by striking the water when a cannon shell forced down an aileron.

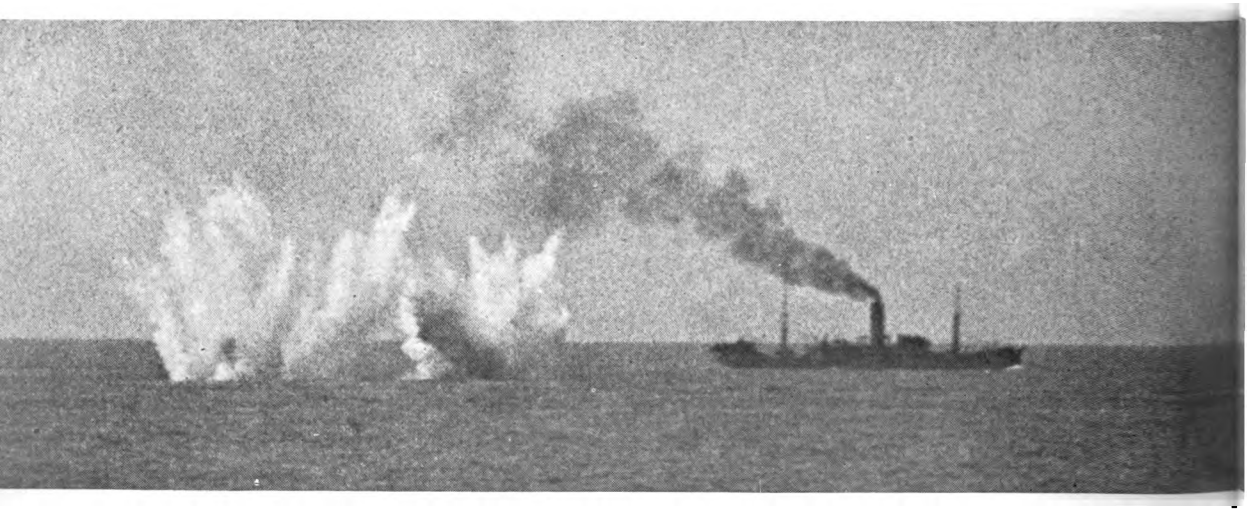
All this gives only an indication of the intensity of the air war which was continually waged over the Mediterranean. It reached its first peak in the aircraft-*versus*-warship battle, which developed during the very heat of Rommel's land attack in the Western Desert, described in the previous chapter. It emerged from the protection of those two British convoys which we were forced to send towards besieged Malta in June 1942—one from the western end of the Mediterranean, and one from the eastern.

The story of the Gibraltar convoy is soon told. This convoy of merchant vessels, with a strong naval escort including a battleship, passed Gibraltar on June 13th without incident on that day or the next, except for an ineffective bombing attack. At last light on June 14th, however, a Spitfire on reconnaissance reported two cruisers and four destroyers leaving Palermo. Soon after dawn the following day these warships opened fire and the escort signalled for an air attack to be made on them from Malta.

As will be seen, so much was going on farther east in the Mediterranean that there was a scant force of strike aircraft on the island at the time—two Beauforts with crews far from experienced, and four naval Albacores. These aircraft were assembled and sent out against the Italian warships with a cover of 16 Spitfires to hold off a swarm of Messerschmitts. The Beauforts led the torpedo attack, hitting the leading cruiser and setting her on fire. After them came the Albacores which hit and severely damaged one of the escorting destroyers. The Italian surface force withdrew without any further attempt to sink the convoy. Albacores had another try for the warships during the afternoon. Once again they scored two hits on a cruiser and a probable on a destroyer.

This phase of the aircraft-warship battle was definitely our victory, for at the cost of one Albacore, considerable damage had been done to the Italian ships, whereas our own were untouched. But within an hour or so the major attack developed, this time from the air. Before dusk two large formations of escorted dive-bombers had inflicted damage which slowed up the whole convoy considerably during the night. Whereas it should have been only 110 miles from Malta next morning, within range of the protection of Spitfires, in fact it was still 140 miles away; the Spitfires covered it nevertheless, straining their petrol endurance. Once under the protection of their guns the ships were damaged no more.

The Spitfires and a few Beaufighters fought all day for the sky above, shooting down 13, probably



The convoy fights through. After three days of incessant sea and air fighting, the convoy, with

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destroying four and damaging another 13 enemy aircraft which still clung to the attack. We lost five Spitfires but saved four pilots. The warships and the convoy with some losses came into Valetta harbour, bringing at least some of the supplies which Malta needed for existence.

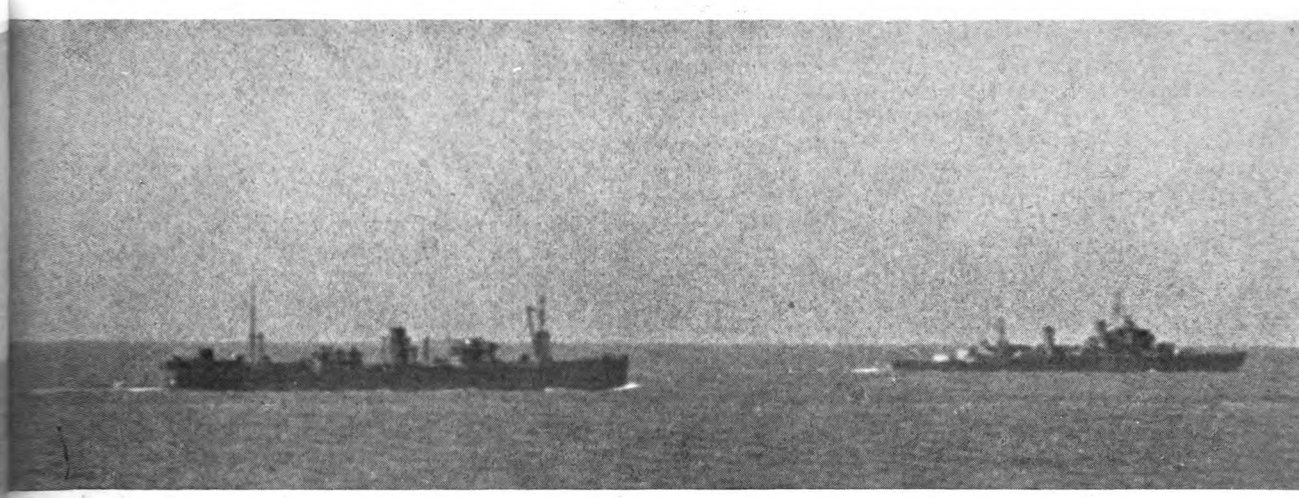
It was over the convoy from the east that the major air-sea battle developed. The merchant vessels in this convoy were guarded by many cruisers and destroyers. They sailed from various ports on June 12th and made successful rendezvous north of Egypt, steaming west. By the morning of the 14th the convoy ran suddenly into great danger. When the ships were in "bomb alley," between Crete and the mainland, about 25 Stukas, some Ju.88s and a dozen Me.109s were reported to be on their way to attack. Air Vice-Marshal Coningham tore away eight Kittyhawks and 15 Tomahawks from the critical desert battle and scrambled them over the convoy. They intercepted the enemy formation north-east of Tobruk, and although they shot down only one Stuka for certain, they forced all the bombers to jettison their bombs harmlessly in the sea. Further bombing attacks were kept up all that day and fought with great determination by Kittyhawks and, later, Beaufighters.

Meanwhile another character had appeared in the cast. Ships of the Italian fleet were putting out from Taranto into the Ionian Sea. Throughout June 14th, Baltimores from Malta swept back and forth over the water looking for them. One Baltimore saw two battleships, four cruisers and eight destroyers about 70 miles south of Taranto, steaming south. Just as darkness was falling, a photographic Spitfire sped across Taranto harbour and confirmed that the main enemy battle fleet had sailed, headed by the Littorio-class battleships.

These reports were sufficient to start the whole air machine into motion, both from Malta and from the African coast, during that short June night and the following day. The Commander-in-Chief, Mediterranean, signalled the convoy to turn east during the small hours of the morning, leaving the waters clear for an engagement between our aircraft and the Italian battle fleet.

Soon after nightfall on June 14th, the crews climbed into three Wellingtons on the bomb-torn runways of Malta and took off to search for the warships. Five more Wellingtons were being prepared on an airfield in the Western Desert to complete the search from the south. They were all airborne by 10 o'clock at night, except one that burst a tyre.

The combined operations room in Alexandria where the air and sea commanders spread their charts beneath shaded electric lights in the silent heat, controlling the ships and the aircraft manœuvring through the night, waited anxiously for news—the brief signal of a sighting report, the result of an attack. They knew where the Italian fleet had last been seen and roughly where it was



some losses, reached Valetta. The enemy lost 43 aircraft destroyed, 22 probably destroyed.

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likely to have reached; they knew where, farther to the east, the convoy that was attempting to reach Malta steamed slowly through the night in the opposite direction, relieved during the darkness of the scream of dive-bombers but peering steadily across the waves for the faint, luminous feather of a periscope's track. They marshalled from widely separated airfields, where cigarette smoke thickened in the small crew-rooms and mechanics stood quietly by the waiting bombers, a force for the attack. Signals were written and passed out. The airfields stirred, propellers swung, the lamps of flarepaths switched on, one by one the bombers took off.

Malta had already sent a second force of Wellingtons, carrying torpedoes, to search the central waters of the Ionian Sea, striving for the glimpse of a ship on the dark water. In the early hours of the morning they found the battle fleet, nearer the coast of Greece than that of Sicily, steaming south. The Wellingtons circled it, preparing to run across and launch torpedoes. The enemy destroyers wheeled swiftly round the battleships and cruisers, laying a thick smoke screen through which some of the Wellingtons managed to attack, with what result they could not see. They reported only that there was a glow on the water beneath the clouds of smoke.

Now it was urgent to direct the strongest possible attack against the fleet. If it were not checked, it might overtake the convoy which had been turned to the east. There seemed scant hope of getting any of the ships through to Malta. It was of first importance to save them.

More signals passed from the combined operations room in Alexandria to the airfields. Down near the Suez Canal, American crews of the Halverson Detachment took off in their Liberators, aiming through the darkness towards the north-west. Some hours later a force of torpedo-carrying Beauforts of the R.A.F., led by a reconnaissance Maryland, took off from an airfield in the desert. Unfortunately it was no longer possible to use Bu Amud, because the land battle was swinging against us. The Beauforts therefore had to fly so much farther that it was known they would be unable to return to Egypt. They were instructed to land at Malta after the attack. It was hoped that, by careful timing, the Beauforts would arrive over the enemy fleet at the same moment as the American Liberators which had taken off several hours before.

While these two forces were in flight outwards from Egypt, Malta was striking again at the Italian fleet, this time with Beauforts. It was light when they arrived, and the guns of the ships put up a heavy barrage against them. The Beauforts flew in low, releasing their torpedoes. One struck a destroyer of the outer screen. It listed heavily. Two others sped on and struck a battleship, damaging but not sinking it. The Beauforts circled through the curtains of shellfire and all returned safely to Malta. One Beaufort,

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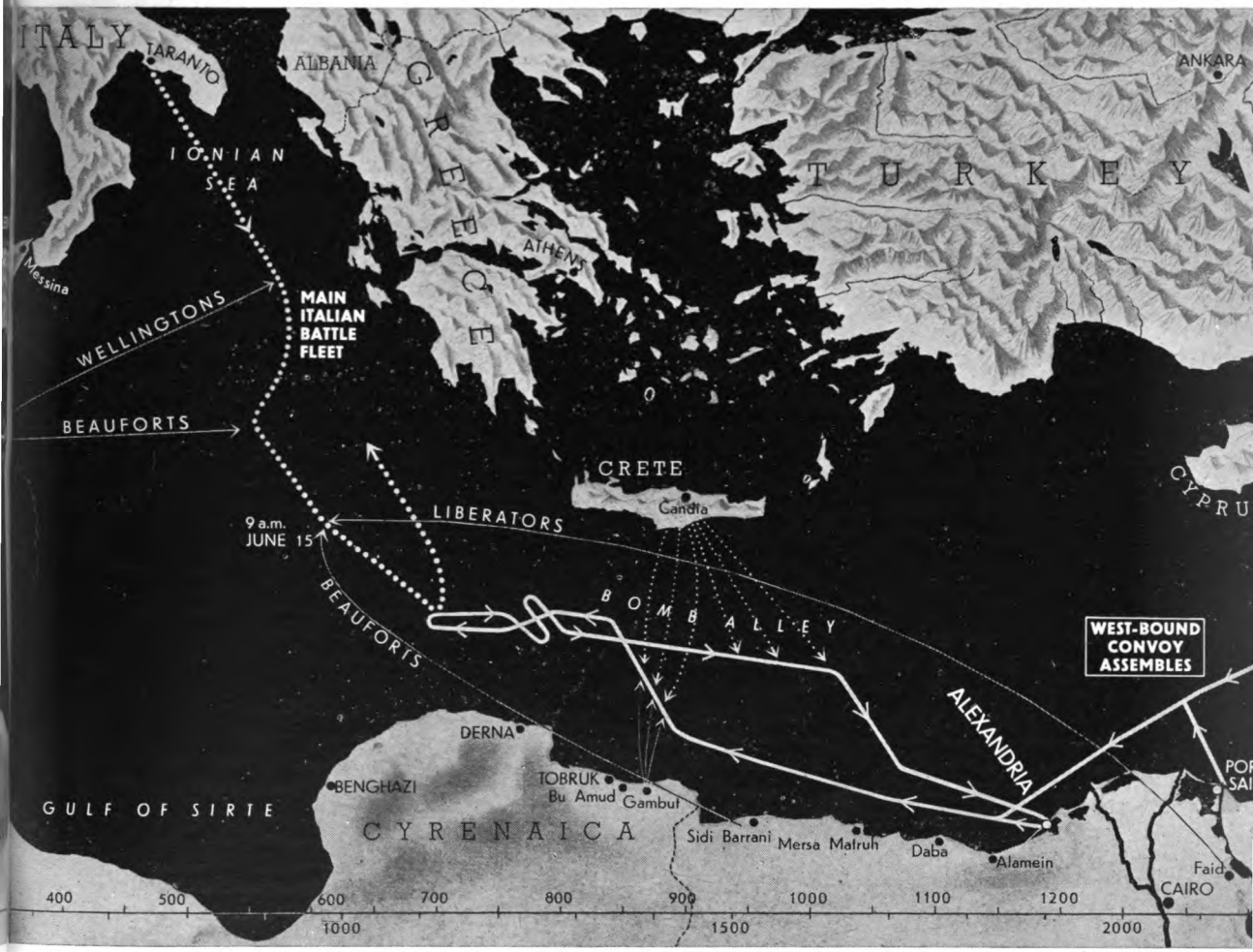

Air power *v.* Sea power : a trial of strength. Two testing, hard-fought actions, waged round convoys to Malta when the air-sea struggle in the Mediterranean was at its height. Thin lines represent R.A.F. operations, thin dotted lines air attacks by the enemy.

getting separated from the formation on the outward journey, arrived alone over the battle fleet. It nevertheless went in alone to the attack through the concentrated fire of the whole fleet, and launched its torpedo at a battleship.

At dawn on June 15th the two striking-forces from Egypt were both still flying over the sea, the Liberators at a great height, the Beauforts close down on the water, separated by many miles from each other. Spread out in a screen ahead of them were all the sea-reconnaissance aircraft of the Middle East, searching for the exact position of the warships. By early morning two of them had sighted all the warships that were believed to be at sea. By then the ships had worked well down into the centre of the Mediterranean north of the Gulf of Sirte. There were in all two battleships, three cruisers and 11 destroyers, split into two forces, one large and one small. It was the larger force around the battleships that was to be attacked.

Soon after 9 o'clock in the morning the

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Liberators sighted the target. They ran across at a good height, the bombardiers adjusting bombsights which can place a bomb with remarkable accuracy and were to make a considerable difference to the Middle East war. It was one of the earliest battles which the American Liberators had fought and their first notable success. They scored four direct hits on a battleship and a cruiser, and a number of misses close enough to be likely to do some damage to other ships. It was thought however that these hits had done no more than superficial damage not affecting the main structure of the ships. On the way home the Liberators shot down an Me.110.

Even as the Liberators were dropping their bombs, their crews could see, close down on the water, the Beauforts flying in to release their torpedoes. At a distance of several hundreds of miles over the sea, starting from airfields hundreds of miles apart at an interval of several hours, with part of the flight in darkness, the hoped-for perfect synchronisation between the Liberators and the Beauforts had been achieved.

Of the 12 Beauforts which had taken off from the desert landing ground, only five had arrived. On the way they had been attacked by Messerschmitts and two of them shot down into the sea. Five more were forced to drop out of the flight after the combat, for their crews had been wounded, their mechanism damaged; all these returned safely to Egypt, save one which was last seen heading towards Malta. With his depleted force the leader, Wing Commander A. J. Mason, D.F.C., nevertheless made a torpedo attack through the ferocity of the A.A. barrage of the battle fleet. They scored one certain hit on a cruiser and one probable on a battleship, then flew safely to Malta. The attack was made easier by the Italian warships themselves which, bombed from above and torpedoed from sea level, turned their broadsides to the Beauforts in a confusion in which two of the destroyers seemed in great danger of colliding.

For the rest of the day the air task was to shadow the battle fleet. At first it continued to sail south-east, but by late afternoon it had suddenly turned to the north-west. Another force of torpedo Wellingtons sped it on its way with one more hit on a battleship through a smoke-screen at dusk, and by June 17th an aircraft photographed the fleet back at Taranto, battered and damaged, and short of one cruiser and one destroyer which had sunk. It had suffered part of this damage from submarines of the Royal Navy which, of course, were equally as vigilant as the air forces.

With this threat out of the way, it had to be decided in Alexandria whether or not the convoy could still make Malta. At first the fastest merchant vessels were turned west again, but soon it was decided to recall all of them to Alexandria. During the period of delay, in which they had been continually attacked from the air with some losses, the ships had spent so much fuel and ammunition that it was doubtful if they could face the aerial bombardment which would await them in the approaches to Malta itself.

It is difficult to assess which side won this battle. The convoy part of it was a failure; of that there can be no question. The ships did not reach Malta, several of them were lost to bombers and submarines, and the fighter force which we could spare from the desert battle to protect them also had heavy losses, although it inflicted equally heavy losses on the enemy aircraft. The Beaufighters suffered in particular. One crew had an extraordinary adventure. They were shot down into the sea with all hatches closed. The observer got out on the surface, but the pilot sank with his aircraft. He could not undo the hatch and had given himself up to death. He sank so far that pressure burst open the hatch and brought him to the surface in an air bubble, at the same time tearing from the wing a petrol tank almost empty of fuel. The pilot put the observer, a poor swimmer, on to the petrol tank. He pushed him ashore in a swim that lasted for 10 hours.

The significance of this operation was not truly the passage of the convoy, however, but the battle it brought about between the Italian fleet and the air power of the Middle East. Of the whole fleet only one cruiser and one destroyer were actually sunk, but air power combined with a submarine attack which scored one hit had forced a powerful surface fleet to put back into harbour without reaching its objective. The air power employed was not strong, since it had to be diverted from the most critical days of the Western Desert battle. The repulse of our convoy by the Luftwaffe and of the Italian fleet by the R.A.F. were both reassertions that the control of the Mediterranean Sea lay in the power of aircraft based on its shores.

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R.A.F. rendezvous. Crews of the Liberators (*above*) and Beauforts detailed to attack the Italian fleet simultaneously. They flew from airfields hundreds of miles apart, starting at an interval of several hours, for some time in darkness and through attack by enemy fighters. As the Liberators were dropping their bombs, their crews saw, close down on the water, the Beauforts flying in to release their torpedoes

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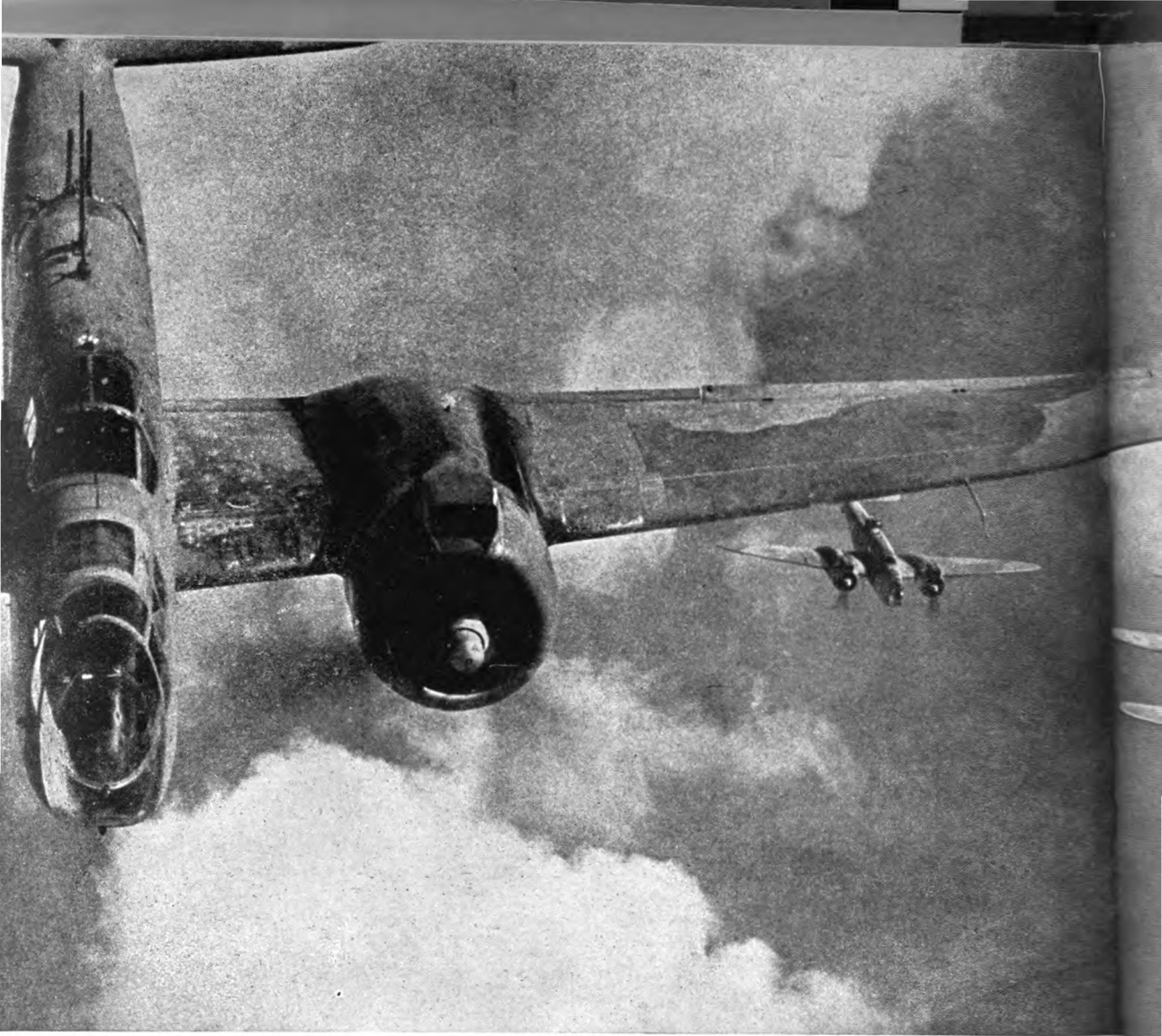

7—The Shield above the Army

WHILE THESE inconclusions were being tried at sea, the battle was failing us in the desert. On June 15th the German armour drove swiftly again to the east, taking Belhamid and leaning on Sidi Rezegh—that luckless stretch of barrenness destined for tank battles. It is necessary here to be provident of superlatives to describe what the Bostons and the Kittyhawks did to check the enemy advance; they will be needed later. Just say that men, who had bombed and fought all day and each day for three weeks, now bombed and fought the harder; that the sand-wake of fighters taking off drifted across the desert more often, the intervals between the drone of bomber engines lessened; that men holding control columns steady in the air and men gripping spanners on the ground wielded them for longer hours, more vigorously. The tent which

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housed the operations control on the Bostons landing ground was crowded from first to last light with crews coming in, crews going out, sand-plastered men, unwashed, unshaven and untiring, calmly discussing with each other some point of tactics, reporting some observed happening on the desert below. Standing back a little from the scene, one of them summed it up by saying it reminded him of a marquee at a busy motor-race meeting—if only, he added wistfully, there were some champagne.

All this effort on the ground and in the air poured down on the advancing German columns the heaviest weight of bombs to which they had so far been subjected in the desert. It did much to damage them; it slowed down their advance, but it could not halt it. By June 17th the Germans held Sidi Rezegh, their armoured cars drove north to cut the coastal road, the defenders of Acroma and El Adem were forced to withdraw into the fortress of Tobruk.

Late that afternoon a formation of Bostons, which seemed just to have taken off, came circling back round Baheira landing ground. Men on the ground looked up with surprise, wondering why they had cut short their raid. They had not cut it short; their bomb racks were empty. The crews came over to the operations tent to report that an enemy column was scarcely more than five minutes' flying time distant. They guessed it might reach the airfield within an hour. It was clear that the squadrons would have to move back.

The foremost fighter squadrons had indeed already moved that afternoon from the Gambut airfields to Sidi Azeiz. Before they went, they delivered one surprise assault that in itself saved the Allied retreat from any sort of interference by the Luftwaffe.

Reconnaissance had shown that the Messerschmitt squadrons had been moved forward to Gazala, obviously in anticipation of days of murderous ground-strafing as our columns bunched to get back through the minefields and wire of the frontier. Just before dusk Wing Commander H. C. Mayers, D.S.O., D.F.C., led the Kittybombers suddenly back and forth over Gazala, bombing and then machine-gunning. They knocked out more than a score of Messerschmitts where they stood, not destroying them all, but damaging them sufficiently to put them out of action for some few days. Baltimore bombers of the R.A.F. went over at dawn the next day without fighter escort to add to the damage. As a result the enemy fighter activity was nil for the next five days—precisely the respite that the ground forces needed to retreat in good order and with small loss.

When the squadrons had to retreat, they went fighting and they went proudly. They also went methodically. On the night of June 17th/18th there was one fighter wing together with about half of the Bostons on Baheira airfield, now the

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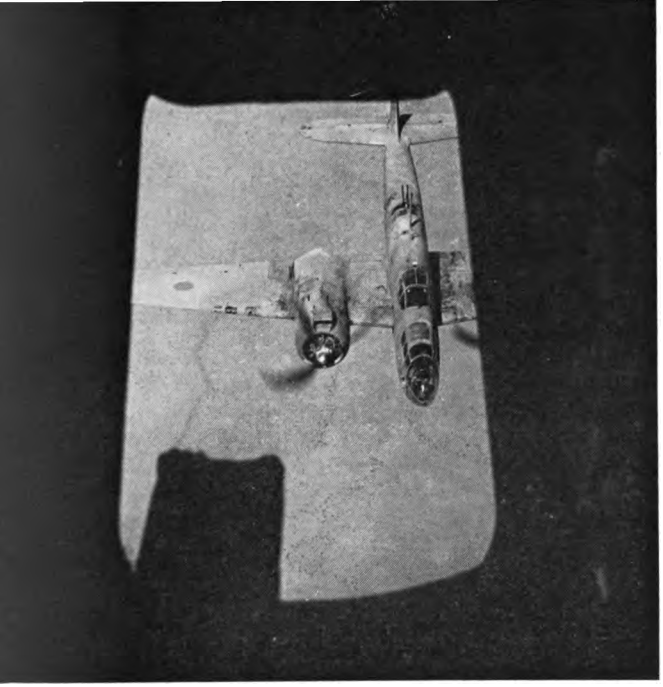

As Rommel advanced, the air-brake tightened. A Baltimore, seen through the hatch of another, on the shuttle-service which bombed all day, every day.

most advanced landing ground, the rest of the fighters being a little to the south-east at Sidi Azeiz. They had stayed closer to the enemy on the ground than any air force of such size had done before, in order to give the greatest possible cover to the retreat of the land forces. They were prepared to be and were among the last units of all the Allied forces to withdraw across the frontier. To accomplish this they took considerable risk on the night of June 17th.

There is on Baheira airfield a little underground concrete cell for an operations room: there, when the aircraft were scattered over dispersal areas for the night, some officers collected in the light of a hurricane lamp to receive by signal and field telephone news of the enemy. The camps around the airfield had all been struck, most of the tents bundled into trucks which stood ready to move off at 10 minutes' notice. Men slept beside the trucks, in the shelter of slit trenches.

The messages that came into the operations room were not reassuring. The enemy tanks had not halted with darkness, but were still advancing over the desert, though more slowly by moonlight. The nearest were not more than 15 miles distant. By midnight they were on the escarpment near Gasr el Arid, being engaged by the Free French in the darkness. The moon had set. An hour later they had come north on to Gambut main airfield, across which a minor battle was moving. By 2 o'clock in the morning they were driven from Gambut and nobody was quite certain whither they had gone. They were said to have turned to the north-east somewhat in the direction of the squadrons immobile on Baheira. Messengers were sent round the truck lines, rousing the sleepers to be ready to move off at first light. At each aircraft the mechanics stood on guard. Here and there in tents the men chewed bacon sandwiches, swallowed mugs of hot tea.

It was a relief when the sun rose, for then it was certain that the aircraft could get away. The German tanks were still 12 miles distant.

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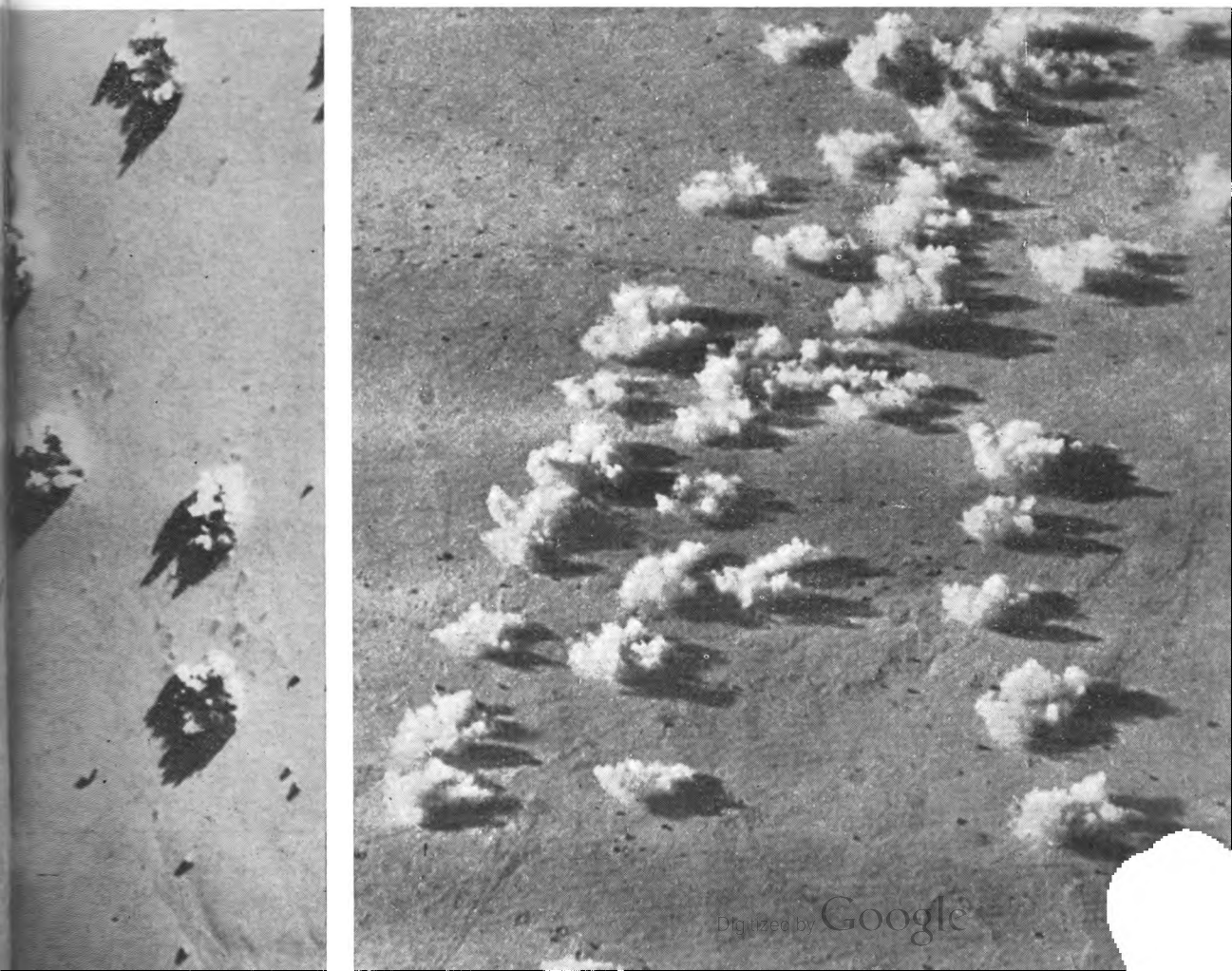
The pilots got into their aircraft and took off for day-long patrols over the retreating forces—patrols on which not a single enemy fighter was met. Aircraft that were normally unserviceable were successfully flown off, one with no instrument panel. There were two Bostons in a sad state. Their ground crews begged to be left behind with a couple of cars, hoping to make the Bostons fly before the enemy arrived, but the squadron commander decided the risk was too great. The two Bostons were fired, the smoke billowing black across a sky already hardening into the blue of the day.

Nothing was left for the enemy. All that could be carried was placed in the trucks to bump across the camel-thorn hillocks to safety; the rest was destroyed. Officers with picks spilled all the petrol drums. Small parties scoured the landing grounds to salvage any odd things of value that had been forgotten. One man was busily arranging empty beer tins upside-down in a case to give the impression either that they were a booby trap, or even—glorious haul—that they were full.

Behind the squadrons came the salvage parties with their cranes and their trucks, lifting damaged aircraft that could not be flown. One bomber they towed along the Trigh Capuzzo behind a car. The air force left behind on its landing grounds exactly five aircraft, all of which were either burned or had already been damaged beyond repair. Compare that with the enemy's

"**An avenue of smoke and sand** advanced across the desert, looking like a wide glade of woolly white trees in a Disney forest. Somewhere beneath it crouched the tanks and trucks and men of the enemy."



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retreat during the previous winter, when he left more than 200 of his aircraft on the landing grounds from which he fled, many of them scarcely damaged.

It was the same story with the petrol and bombs carried back by the supply and transport columns of the R.A.F. One small column brought back in several journeys 260,000 gallons of aviation petrol and about 300 heavy bombs. The last trucks, loaded under shellfire, got away only by striking out for little-known desert tracks.

At the gaps in the frontier wire it seemed that every truck in the world had gathered. The whole desert was a moving pattern of trucks, the finest target the enemy strafers had ever been offered. But the only aircraft that flew overhead were Hurricanes and Kittyhawks. The Messerschmitts lay broken on the landing grounds at Gazala.

By nightfall the squadrons were reorganised on new landing grounds behind the frontier. The position was then as if the campaign of the previous winter had never been fought. Our troops were back on the Egyptian frontier with a strong garrison in Tobruk. The fighter squadrons were on landing grounds behind the wire; Tobruk was out of their range, as it had been all the summer of 1941. The squadrons themselves were decimated. Some were down to a couple of serviceable aircraft, a handful of pilots. Several were sent back to base to re-equip and to train in order to start all over again the weary process of 1941, the building-up of supplies, the running of convoys to Tobruk and another big campaign in the autumn. That was what was envisaged.

On June 20th a piece of news went round the desert that was at first condemned angrily as a mischievous rumour, but it was true. Tobruk had fallen. Tobruk with all its garrison and its vast stores. A heavy artillery and air bombardment in which the R.A.F. could not intervene because of range had preceded a tank assault. A few reconnaissance aircraft which had remained inside the perimeter managed to fly out; the ground units of the air force were captured.

It meant that the frontier could not be held. The line south from Mersa Matruh was chosen for a stand. The enemy was up against those defences by June 26th.

Two days previously the air force had been called upon to make an all-out effort. It was evident that Benghazi would soon be out of range

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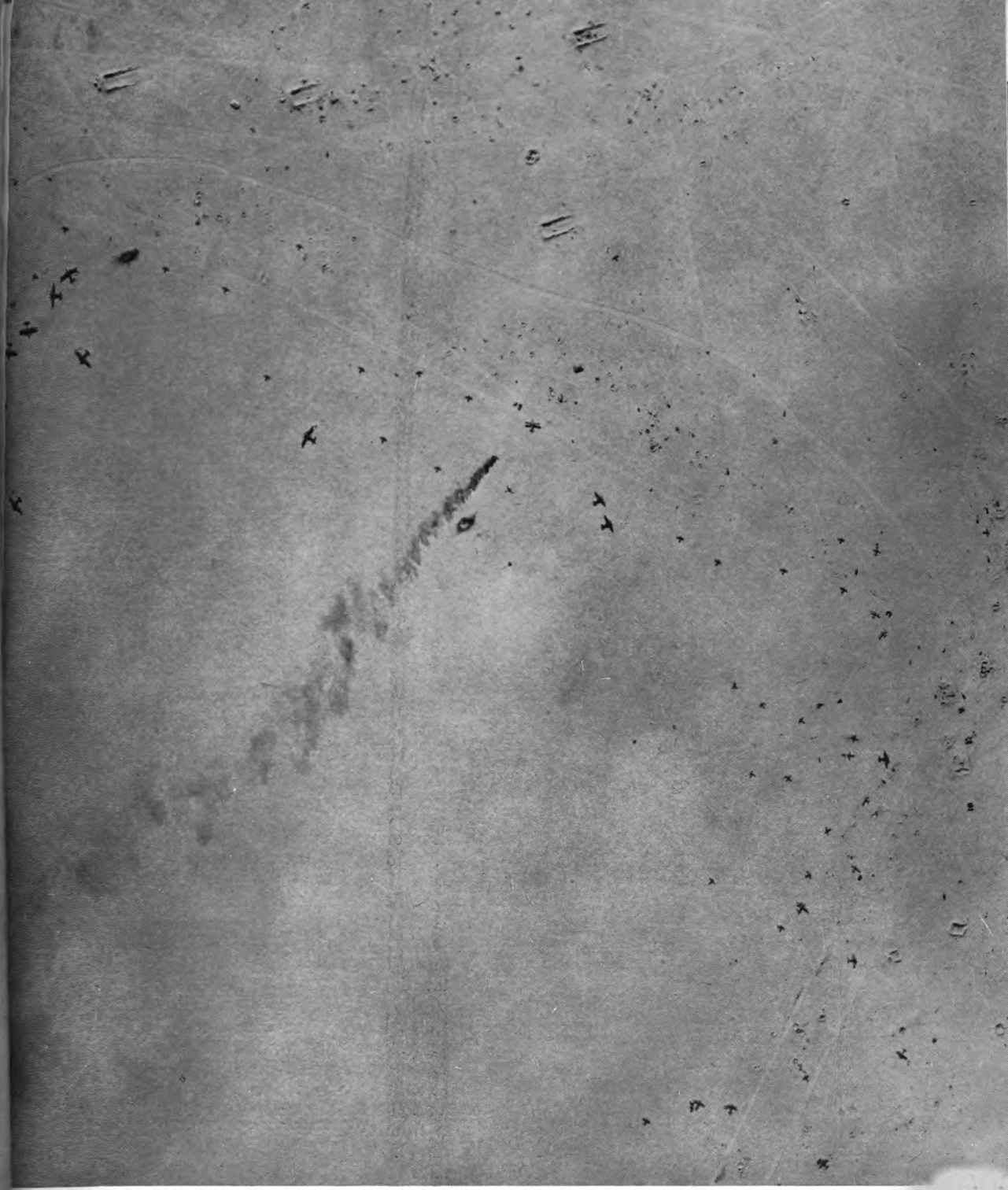

The Luftwaffe gathers for Rommel's last throw. On July 26th, before the Afrika Korps reached Alar 112 aircraft were counted on this landing ground at Sidi Barrani. This reconnaissance photograph s 15 Ju. 52s unloading on the S.W. boundary and 75 fighters dispersed round the perimeter and in the hors shelters (a protection from blast). One is burnt out and another is on fire. Thanks to R.A.F. strafin weak enemy organisation, it was seven days before this force could intervene on any scale in the figh

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leader which, with its gun turret out of action, had dodged some of its pursuers by flying close under the cliffs of Malta, landed without hydraulics, with the rudder stripped of fabric for three-quarters of its length, and with the port wing damaged by striking the water when a cannon shell forced down an aileron.

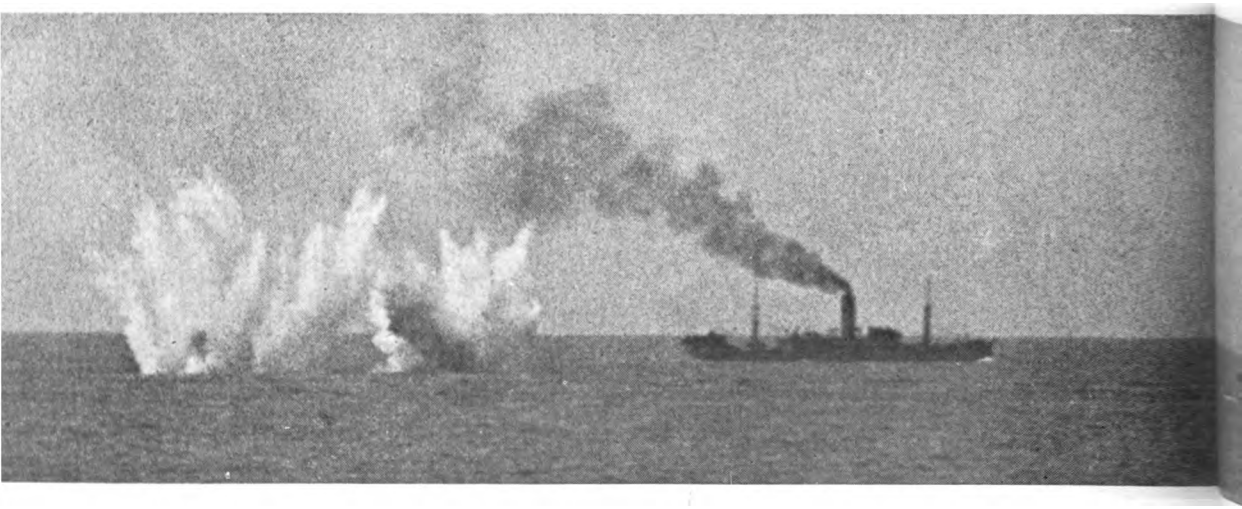
All this gives only an indication of the intensity of the air war which was continually waged over the Mediterranean. It reached its first peak in the aircraft-*versus*-warship battle, which developed during the very heat of Rommel's land attack in the Western Desert, described in the previous chapter. It emerged from the protection of those two British convoys which we were forced to send towards besieged Malta in June 1942—one from the western end of the Mediterranean, and one from the eastern.

The story of the Gibraltar convoy is soon told. This convoy of merchant vessels, with a strong naval escort including a battleship, passed Gibraltar on June 13th without incident on that day or the next, except for an ineffective bombing attack. At last light on June 14th, however, a Spitfire on reconnaissance reported two cruisers and four destroyers leaving Palermo. Soon after dawn the following day these warships opened fire and the escort signalled for an air attack to be made on them from Malta.

As will be seen, so much was going on farther east in the Mediterranean that there was a scant force of strike aircraft on the island at the time—two Beauforts with crews far from experienced, and four naval Albacores. These aircraft were assembled and sent out against the Italian warships with a cover of 16 Spitfires to hold off a swarm of Messerschmitts. The Beauforts led the torpedo attack, hitting the leading cruiser and setting her on fire. After them came the Albacores which hit and severely damaged one of the escorting destroyers. The Italian surface force withdrew without any further attempt to sink the convoy. Albacores had another try for the warships during the afternoon. Once again they scored two hits on a cruiser and a probable on a destroyer.

This phase of the aircraft-warship battle was definitely our victory, for at the cost of one Albacore, considerable damage had been done to the Italian ships, whereas our own were untouched. But within an hour or so the major attack developed, this time from the air. Before dusk two large formations of escorted dive-bombers had inflicted damage which slowed up the whole convoy considerably during the night. Whereas it should have been only 110 miles from Malta next morning, within range of the protection of Spitfires, in fact it was still 140 miles away; the Spitfires covered it nevertheless, straining their petrol endurance. Once under the protection of their guns the ships were damaged no more.

The Spitfires and a few Beaufighters fought all day for the sky above, shooting down 13, probably



The convoy fights through. After three days of incessant sea and air fighting, the convoy, with

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destroying four and damaging another 13 enemy aircraft which still clung to the attack. We lost five Spitfires but saved four pilots. The warships and the convoy with some losses came into Valetta harbour, bringing at least some of the supplies which Malta needed for existence.

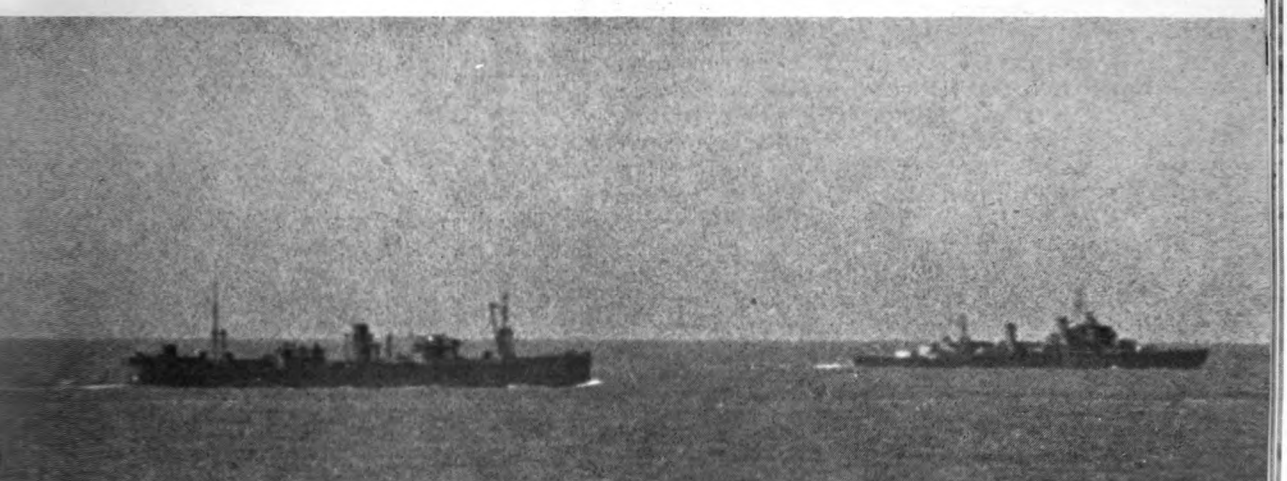
It was over the convoy from the east that the major air-sea battle developed. The merchant vessels in this convoy were guarded by many cruisers and destroyers. They sailed from various ports on June 12th and made successful rendezvous north of Egypt, steaming west. By the morning of the 14th the convoy ran suddenly into great danger. When the ships were in "bomb alley," between Crete and the mainland, about 25 Stukas, some Ju.88s and a dozen Me.109s were reported to be on their way to attack. Air Vice-Marshal Coningham tore away eight Kittyhawks and 15 Tomahawks from the critical desert battle and scrambled them over the convoy. They intercepted the enemy formation north-east of Tobruk, and although they shot down only one Stuka for certain, they forced all the bombers to jettison their bombs harmlessly in the sea. Further bombing attacks were kept up all that day and fought with great determination by Kittyhawks and, later, Beaufighters.

Meanwhile another character had appeared in the cast. Ships of the Italian fleet were putting out from Taranto into the Ionian Sea. Throughout June 14th, Baltimores from Malta swept back and forth over the water looking for them. One Baltimore saw two battleships, four cruisers and eight destroyers about 70 miles south of Taranto, steaming south. Just as darkness was falling, a photographic Spitfire sped across Taranto harbour and confirmed that the main enemy battle fleet had sailed, headed by the Littorio-class battleships.

These reports were sufficient to start the whole air machine into motion, both from Malta and from the African coast, during that short June night and the following day. The Commander-in-Chief, Mediterranean, signalled the convoy to turn east during the small hours of the morning, leaving the waters clear for an engagement between our aircraft and the Italian battle fleet.

Soon after nightfall on June 14th, the crews climbed into three Wellingtons on the bomb-torn runways of Malta and took off to search for the warships. Five more Wellingtons were being prepared on an airfield in the Western Desert to complete the search from the south. They were all airborne by 10 o'clock at night, except one that burst a tyre.

The combined operations room in Alexandria where the air and sea commanders spread their charts beneath shaded electric lights in the silent heat, controlling the ships and the aircraft manœuvring through the night, waited anxiously for news—the brief signal of a sighting report, the result of an attack. They knew where the Italian fleet had last been seen and roughly where it was



losses, reached Valetta. The enemy lost 43 aircraft destroyed, 22 probably destroyed.

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likely to have reached; they knew where, farther to the east, the convoy that was attempting to reach Malta steamed slowly through the night in the opposite direction, relieved during the darkness of the scream of dive-bombers but peering steadily across the waves for the faint, luminous feather of a periscope's track. They marshalled from widely separated airfields, where cigarette smoke thickened in the small crew-rooms and mechanics stood quietly by the waiting bombers, a force for the attack. Signals were written and passed out. The airfields stirred, propellers swung, the lamps of flarepaths switched on, one by one the bombers took off.

Malta had already sent a second force of Wellingtons, carrying torpedoes, to search the central waters of the Ionian Sea, striving for the glimpse of a ship on the dark water. In the early hours of the morning they found the battle fleet, nearer the coast of Greece than that of Sicily, steaming south. The Wellingtons circled it, preparing to run across and launch torpedoes. The enemy destroyers wheeled swiftly round the battleships and cruisers, laying a thick smoke screen through which some of the Wellingtons managed to attack, with what result they could not see. They reported only that there was a glow on the water beneath the clouds of smoke.

Now it was urgent to direct the strongest possible attack against the fleet. If it were not checked, it might overtake the convoy which had been turned to the east. There seemed scant hope of getting any of the ships through to Malta. It was of first importance to save them.

More signals passed from the combined operations room in Alexandria to the airfields. Down near the Suez Canal, American crews of the Halverson Detachment took off in their Liberators, aiming through the darkness towards the north-west. Some hours later a force of torpedo-carrying Beauforts of the R.A.F., led by a reconnaissance Maryland, took off from an airfield in the desert. Unfortunately it was no longer possible to use Bu Amud, because the land battle was swinging against us. The Beauforts therefore had to fly so much farther that it was known they would be unable to return to Egypt. They were instructed to land at Malta after the attack. It was hoped that, by careful timing, the Beauforts would arrive over the enemy fleet at the same moment as the American Liberators which had taken off several hours before.

While these two forces were in flight outwards from Egypt, Malta was striking again at the Italian fleet, this time with Beauforts. It was light when they arrived, and the guns of the ships put up a heavy barrage against them. The Beauforts flew in low, releasing their torpedoes. One struck a destroyer of the outer screen. It listed heavily. Two others sped on and struck a battleship, damaging but not sinking it. The Beauforts circled through the curtains of shellfire and all returned safely to Malta. One Beaufort,

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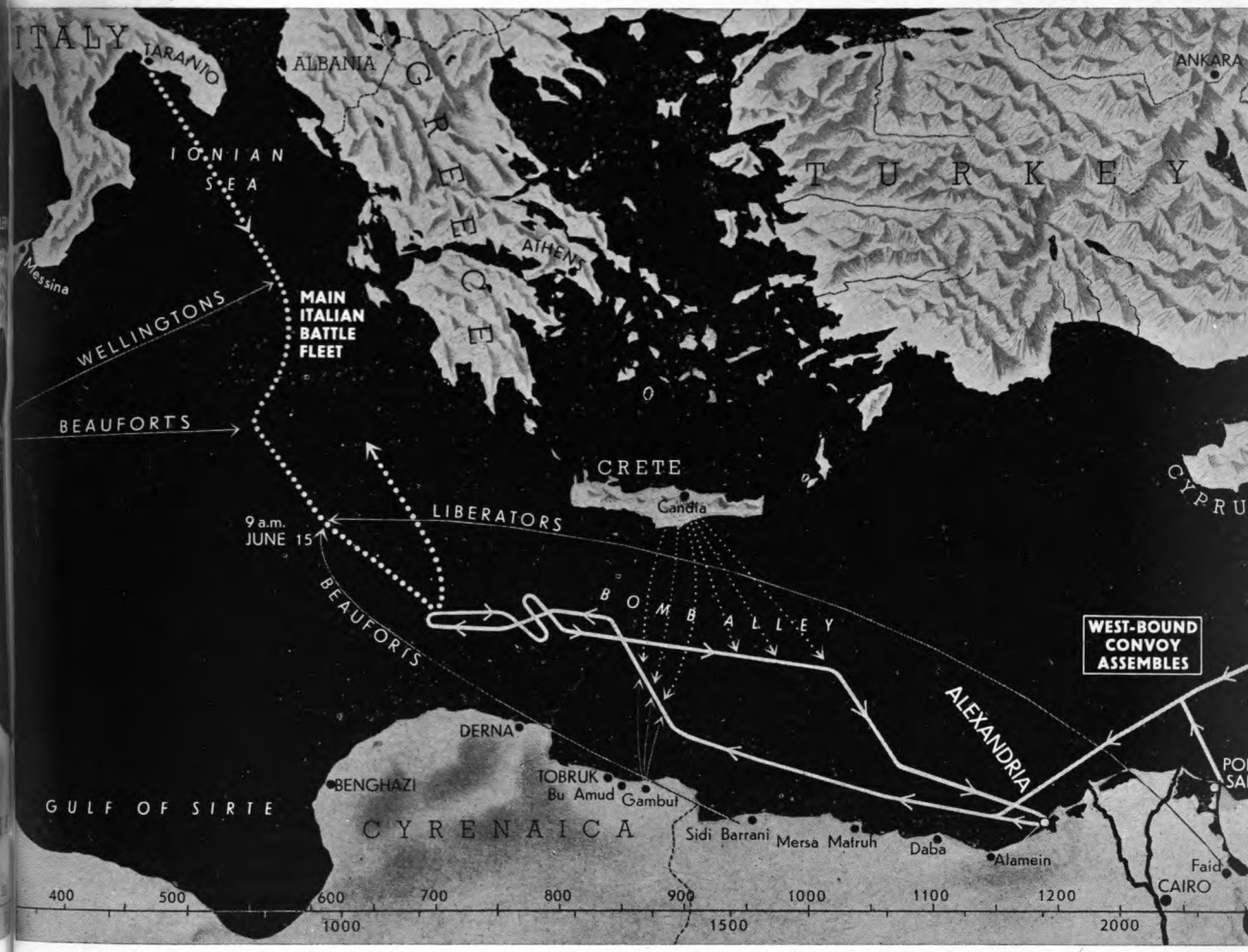

Air power *v.* Sea power : a trial of strength. Two testing, hard-fought actions, waged round convoys to Malta when the air-sea struggle in the Mediterranean was at its height. Thin lines represent R.A.F. operations, thin dotted lines air attacks by the enemy.

getting separated from the formation on the outward journey, arrived alone over the battle fleet. It nevertheless went in alone to the attack through the concentrated fire of the whole fleet, and launched its torpedo at a battleship.

At dawn on June 15th the two striking-forces from Egypt were both still flying over the sea, the Liberators at a great height, the Beauforts close down on the water, separated by many miles from each other. Spread out in a screen ahead of them were all the sea-reconnaissance aircraft of the Middle East, searching for the exact position of the warships. By early morning two of them had sighted all the warships that were believed to be at sea. By then the ships had worked well down into the centre of the Mediterranean north of the Gulf of Sirte. There were in all two battleships, three cruisers and 11 destroyers, split into two forces, one large and one small. It was the larger force around the battleships that was to be attacked.

Soon after 9 o'clock in the morning the

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Liberators sighted the target. They ran across at a good height, the bombardiers adjusting bombsights which can place a bomb with remarkable accuracy and were to make a considerable difference to the Middle East war. It was one of the earliest battles which the American Liberators had fought and their first notable success. They scored four direct hits on a battleship and a cruiser, and a number of misses close enough to be likely to do some damage to other ships. It was thought however that these hits had done no more than superficial damage not affecting the main structure of the ships. On the way home the Liberators shot down an Me.110.

Even as the Liberators were dropping their bombs, their crews could see, close down on the water, the Beauforts flying in to release their torpedoes. At a distance of several hundreds of miles over the sea, starting from airfields hundreds of miles apart at an interval of several hours, with part of the flight in darkness, the hoped-for perfect synchronisation between the Liberators and the Beauforts had been achieved.

Of the 12 Beauforts which had taken off from the desert landing ground, only five had arrived. On the way they had been attacked by Messerschmitts and two of them shot down into the sea. Five more were forced to drop out of the flight after the combat, for their crews had been wounded, their mechanism damaged; all these returned safely to Egypt, save one which was last seen heading towards Malta. With his depleted force the leader, Wing Commander A. J. Mason, D.F.C., nevertheless made a torpedo attack through the ferocity of the A.A. barrage of the battle fleet. They scored one certain hit on a cruiser and one probable on a battleship, then flew safely to Malta. The attack was made easier by the Italian warships themselves which, bombed from above and torpedoed from sea level, turned their broadsides to the Beauforts in a confusion in which two of the destroyers seemed in great danger of colliding.

For the rest of the day the air task was to shadow the battle fleet. At first it continued to sail south-east, but by late afternoon it had suddenly turned to the north-west. Another force of torpedo Wellingtons sped it on its way with one more hit on a battleship through a smoke-screen at dusk, and by June 17th an aircraft photographed the fleet back at Taranto, battered and damaged, and short of one cruiser and one destroyer which had sunk. It had suffered part of this damage from submarines of the Royal Navy which, of course, were equally as vigilant as the air forces.

With this threat out of the way, it had to be decided in Alexandria whether or not the convoy could still make Malta. At first the fastest merchant vessels were turned west again, but soon it was decided to recall all of them to Alexandria. During the period of delay, in which they had been continually attacked from the air with some losses, the ships had spent so much fuel and ammunition that it was doubtful if they could face the aerial bombardment which would await them in the approaches to Malta itself.

It is difficult to assess which side won this battle. The convoy part of it was a failure; of that there can be no question. The ships did not reach Malta, several of them were lost to bombers and submarines, and the fighter force which we could spare from the desert battle to protect them also had heavy losses, although it inflicted equally heavy losses on the enemy aircraft. The Beaufighters suffered in particular. One crew had an extraordinary adventure. They were shot down into the sea with all hatches closed. The observer got out on the surface, but the pilot sank with his aircraft. He could not undo the hatch and had given himself up to death. He sank so far that pressure burst open the hatch and brought him to the surface in an air bubble, at the same time tearing from the wing a petrol tank almost empty of fuel. The pilot put the observer, a poor swimmer, on to the petrol tank. He pushed him ashore in a swim that lasted for 10 hours.

The significance of this operation was not truly the passage of the convoy, however, but the battle it brought about between the Italian fleet and the air power of the Middle East. Of the whole fleet only one cruiser and one destroyer were actually sunk, but air power combined with a submarine attack which scored one hit had forced a powerful surface fleet to put back into harbour without reaching its objective. The air power employed was not strong, since it had to be diverted from the most critical days of the Western Desert battle. The repulse of our convoy by the Luftwaffe and of the Italian fleet by the R.A.F. were both reassertions that the control of the Mediterranean Sea lay in the power of aircraft based on its shores.

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R.A.F. rendezvous. Crews of the Liberators (*above*) and Beauforts detailed to attack the Italian fleet simultaneously. They flew from airfields hundreds of miles apart, starting at an interval of several hours, for some time in darkness and through attack by enemy fighters. As the Liberators were dropping their bombs, their crews saw, close down on the water, the Beauforts flying in to release their torpedoes

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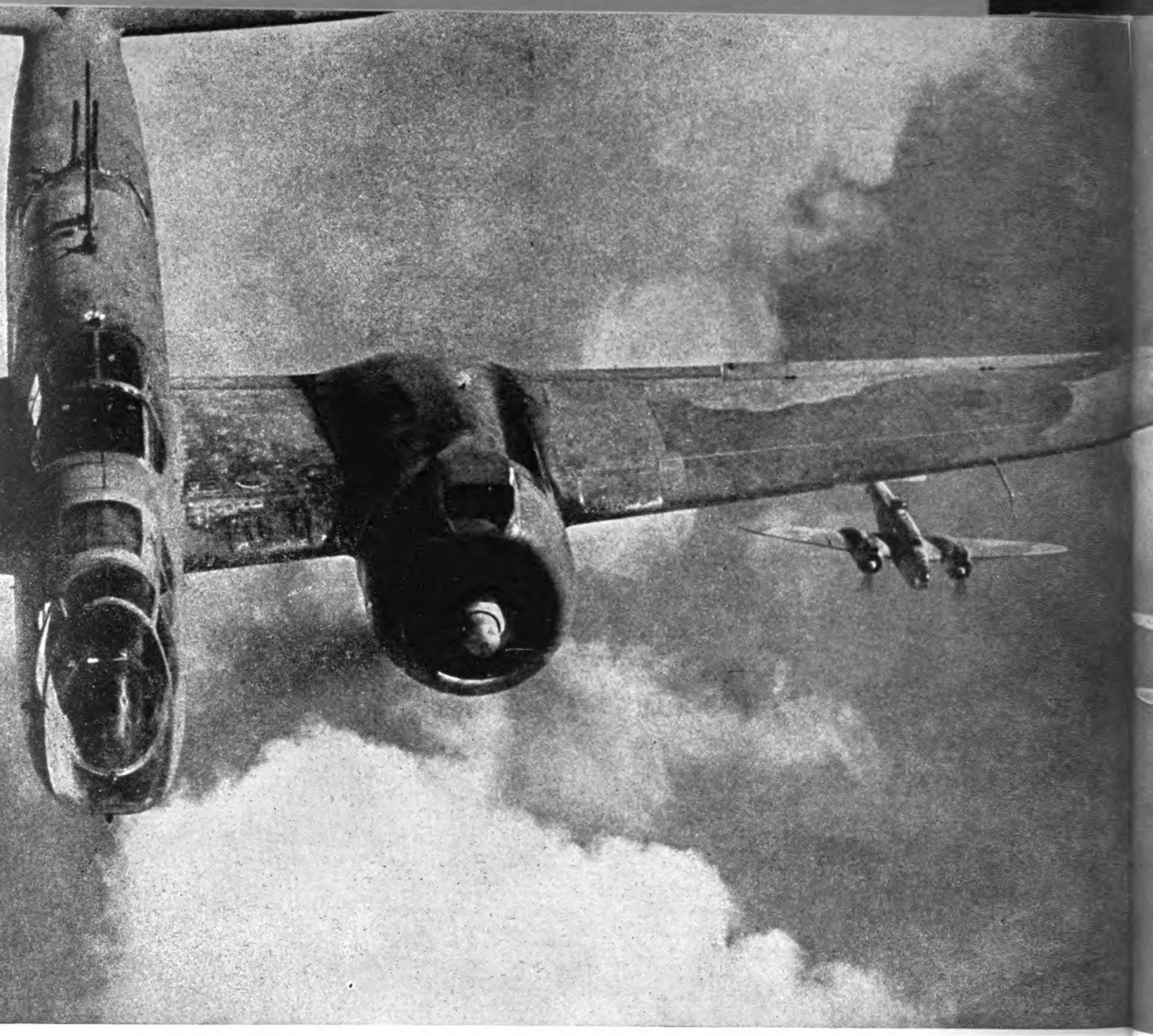

7—The Shield above the Army

WHILE THESE inconclusions were being tried at sea, the battle was failing us in the desert. On June 15th the German armour drove swiftly again to the east, taking Belhamid and leaning on Sidi Rezegh—that luckless stretch of barrenness destined for tank battles. It is necessary here to be provident of superlatives to describe what the Bostons and the Kittyhawks did to check the enemy advance; they will be needed later. Just say that men, who had bombed and fought all day and each day for three weeks, now bombed and fought the harder; that the sand-wake of fighters taking off drifted across the desert more often, the intervals between the drone of bomber engines lessened; that men holding control columns steady in the air and men gripping spanners on the ground wielded them for longer hours, more vigorously. The tent which

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housed the operations control on the Bostons landing ground was crowded from first to last light with crews coming in, crews going out, sand-plastered men, unwashed, unshaven and untiring, calmly discussing with each other some point of tactics, reporting some observed happening on the desert below. Standing back a little from the scene, one of them summed it up by saying it reminded him of a marquee at a busy motor-race meeting—if only, he added wistfully, there were some champagne.

All this effort on the ground and in the air poured down on the advancing German columns the heaviest weight of bombs to which they had so far been subjected in the desert. It did much to damage them; it slowed down their advance, but it could not halt it. By June 17th the Germans held Sidi Rezegh, their armoured cars drove north to cut the coastal road, the defenders of Acroma and El Adem were forced to withdraw into the fortress of Tobruk.

Late that afternoon a formation of Bostons, which seemed just to have taken off, came circling back round Baheira landing ground. Men on the ground looked up with surprise, wondering why they had cut short their raid. They had not cut it short; their bomb racks were empty. The crews came over to the operations tent to report that an enemy column was scarcely more than five minutes' flying time distant. They guessed it might reach the airfield within an hour. It was clear that the squadrons would have to move back.

The foremost fighter squadrons had indeed already moved that afternoon from the Gambut airfields to Sidi Azeiz. Before they went, they delivered one surprise assault that in itself saved the Allied retreat from any sort of interference by the Luftwaffe.

Reconnaissance had shown that the Messerschmitt squadrons had been moved forward to Gazala, obviously in anticipation of days of murderous ground-strafing as our columns bunched to get back through the minefields and wire of the frontier. Just before dusk Wing Commander H. C. Mayers, D.S.O., D.F.C., led the Kittybombers suddenly back and forth over Gazala, bombing and then machine-gunning. They knocked out more than a score of Messerschmitts where they stood, not destroying them all, but damaging them sufficiently to put them out of action for some few days. Baltimore bombers of the R.A.F. went over at dawn the next day without fighter escort to add to the damage. As a result the enemy fighter activity was nil for the next five days—precisely the respite that the ground forces needed to retreat in good order and with small loss.

When the squadrons had to retreat, they went fighting and they went proudly. They also went methodically. On the night of June 17th/18th there was one fighter wing together with about half of the Bostons on Baheira airfield, now the

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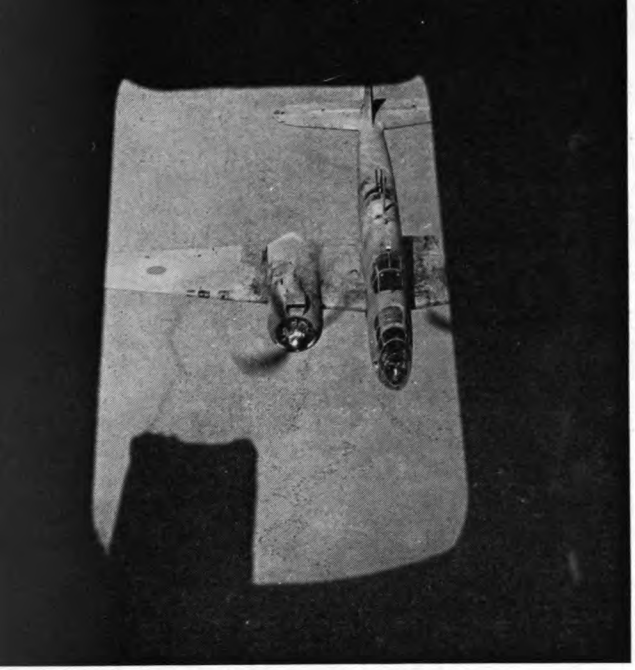

As Rommel advanced, the air-brake tightened. A Baltimore, seen through the hatch of another, on the shuttle-service which bombed all day, every day.

most advanced landing ground, the rest of the fighters being a little to the south-east at Sidi Azeiz. They had stayed closer to the enemy on the ground than any air force of such size had done before, in order to give the greatest possible cover to the retreat of the land forces. They were prepared to be and were among the last units of all the Allied forces to withdraw across the frontier. To accomplish this they took considerable risk on the night of June 17th.

There is on Baheira airfield a little underground concrete cell for an operations room: there, when the aircraft were scattered over dispersal areas for the night, some officers collected in the light of a hurricane lamp to receive by signal and field telephone news of the enemy. The camps around the airfield had all been struck, most of the tents bundled into trucks which stood ready to move off at 10 minutes' notice. Men slept beside the trucks, in the shelter of slit trenches.

The messages that came into the operations room were not reassuring. The enemy tanks had not halted with darkness, but were still advancing over the desert, though more slowly by moonlight. The nearest were not more than 15 miles distant. By midnight they were on the escarpment near Gasr el Arid, being engaged by the Free French in the darkness. The moon had set. An hour later they had come north on to Gambut main airfield, across which a minor battle was moving. By 2 o'clock in the morning they were driven from Gambut and nobody was quite certain whither they had gone. They were said to have turned to the north-east somewhat in the direction of the squadrons immobile on Baheira. Messengers were sent round the truck lines, rousing the sleepers to be ready to move off at first light. At each aircraft the mechanics stood on guard. Here and there in tents the men chewed bacon sandwiches, swallowed mugs of hot tea.

It was a relief when the sun rose, for then it was certain that the aircraft could get away. The German tanks were still 12 miles distant.

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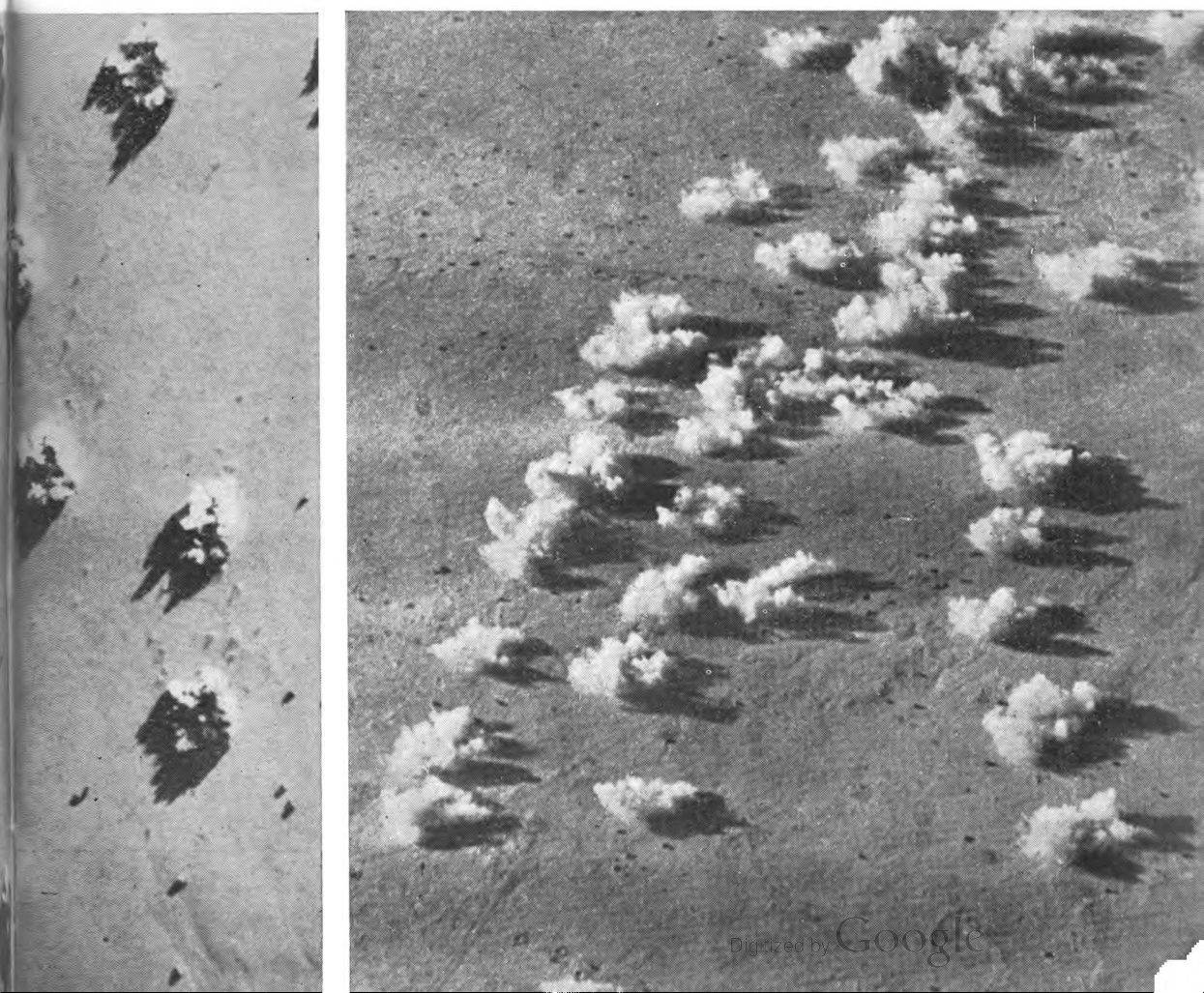
The pilots got into their aircraft and took off for day-long patrols over the retreating forces—patrols on which not a single enemy fighter was met. Aircraft that were normally unserviceable were successfully flown off, one with no instrument panel. There were two Bostons in a sad state. Their ground crews begged to be left behind with a couple of cars, hoping to make the Bostons fly before the enemy arrived, but the squadron commander decided the risk was too great. The two Bostons were fired, the smoke billowing black across a sky already hardening into the blue of the day.

Nothing was left for the enemy. All that could be carried was placed in the trucks to bump across the camel-thorn hillocks to safety; the rest was destroyed. Officers with picks spilled all the petrol drums. Small parties scoured the landing grounds to salvage any odd things of value that had been forgotten. One man was busily arranging empty beer tins upside-down in a case to give the impression either that they were a booby trap, or even—glorious haul—that they were full.

Behind the squadrons came the salvage parties with their cranes and their trucks, lifting damaged aircraft that could not be flown. One bomber they towed along the Trigh Capuzzo behind a car. The air force left behind on its landing grounds exactly five aircraft, all of which were either burned or had already been damaged beyond repair. Compare that with the enemy's

"An avenue of smoke and sand advanced across the desert, looking like a wide glade of woolly white trees in a Disney forest. Somewhere beneath it crouched the tanks and trucks and men of the enemy."



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retreat during the previous winter, when he left more than 200 of his aircraft on the landing grounds from which he fled, many of them scarcely damaged.

It was the same story with the petrol and bombs carried back by the supply and transport columns of the R.A.F. One small column brought back in several journeys 260,000 gallons of aviation petrol and about 300 heavy bombs. The last trucks, loaded under shellfire, got away only by striking out for little-known desert tracks.

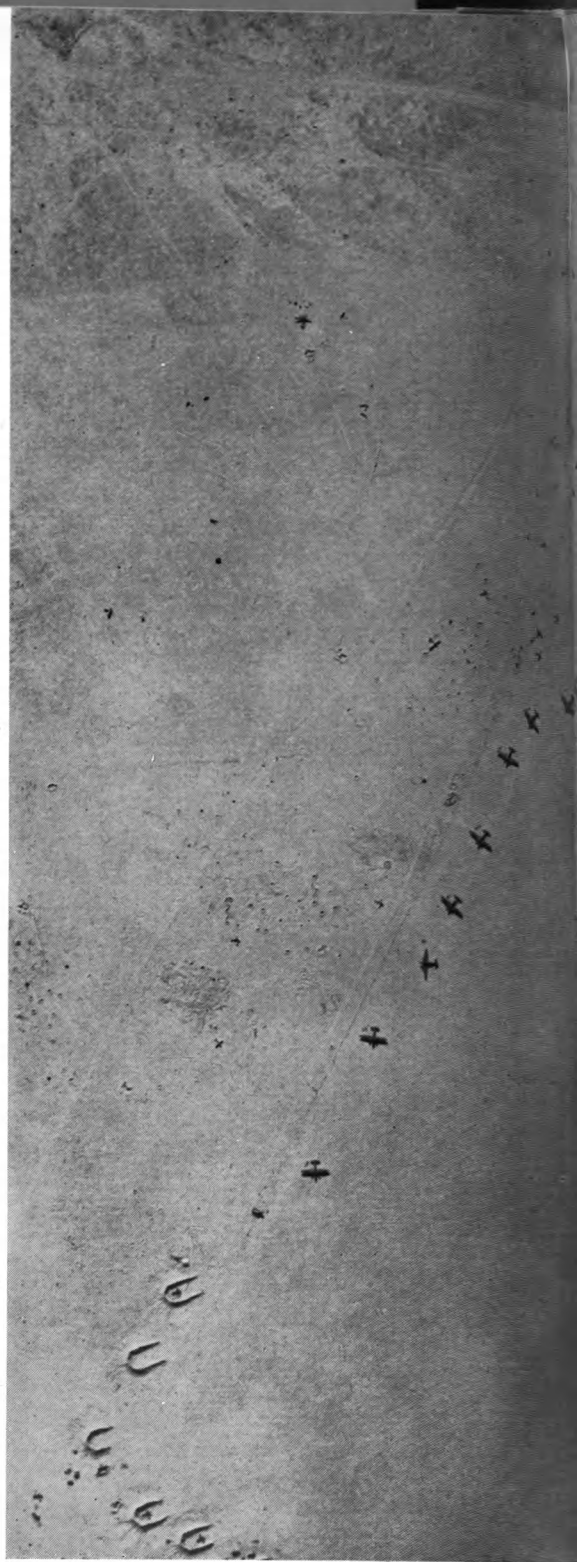
At the gaps in the frontier wire it seemed that every truck in the world had gathered. The whole desert was a moving pattern of trucks, the finest target the enemy strafers had ever been offered. But the only aircraft that flew overhead were Hurricanes and Kittyhawks. The Messerschmitts lay broken on the landing grounds at Gazala.

By nightfall the squadrons were reorganised on new landing grounds behind the frontier. The position was then as if the campaign of the previous winter had never been fought. Our troops were back on the Egyptian frontier with a strong garrison in Tobruk. The fighter squadrons were on landing grounds behind the wire; Tobruk was out of their range, as it had been all the summer of 1941. The squadrons themselves were decimated. Some were down to a couple of serviceable aircraft, a handful of pilots. Several were sent back to base to re-equip and to train in order to start all over again the weary process of 1941, the building-up of supplies, the running of convoys to Tobruk and another big campaign in the autumn. That was what was envisaged.

On June 20th a piece of news went round the desert that was at first condemned angrily as a mischievous rumour, but it was true. Tobruk had fallen. Tobruk with all its garrison and its vast stores. A heavy artillery and air bombardment in which the R.A.F. could not intervene because of range had preceded a tank assault. A few reconnaissance aircraft which had remained inside the perimeter managed to fly out; the ground units of the air force were captured.

It meant that the frontier could not be held. The line south from Mersa Matruh was chosen for a stand. The enemy was up against those defences by June 26th.

Two days previously the air force had been called upon to make an all-out effort. It was evident that Benghazi would soon be out of range



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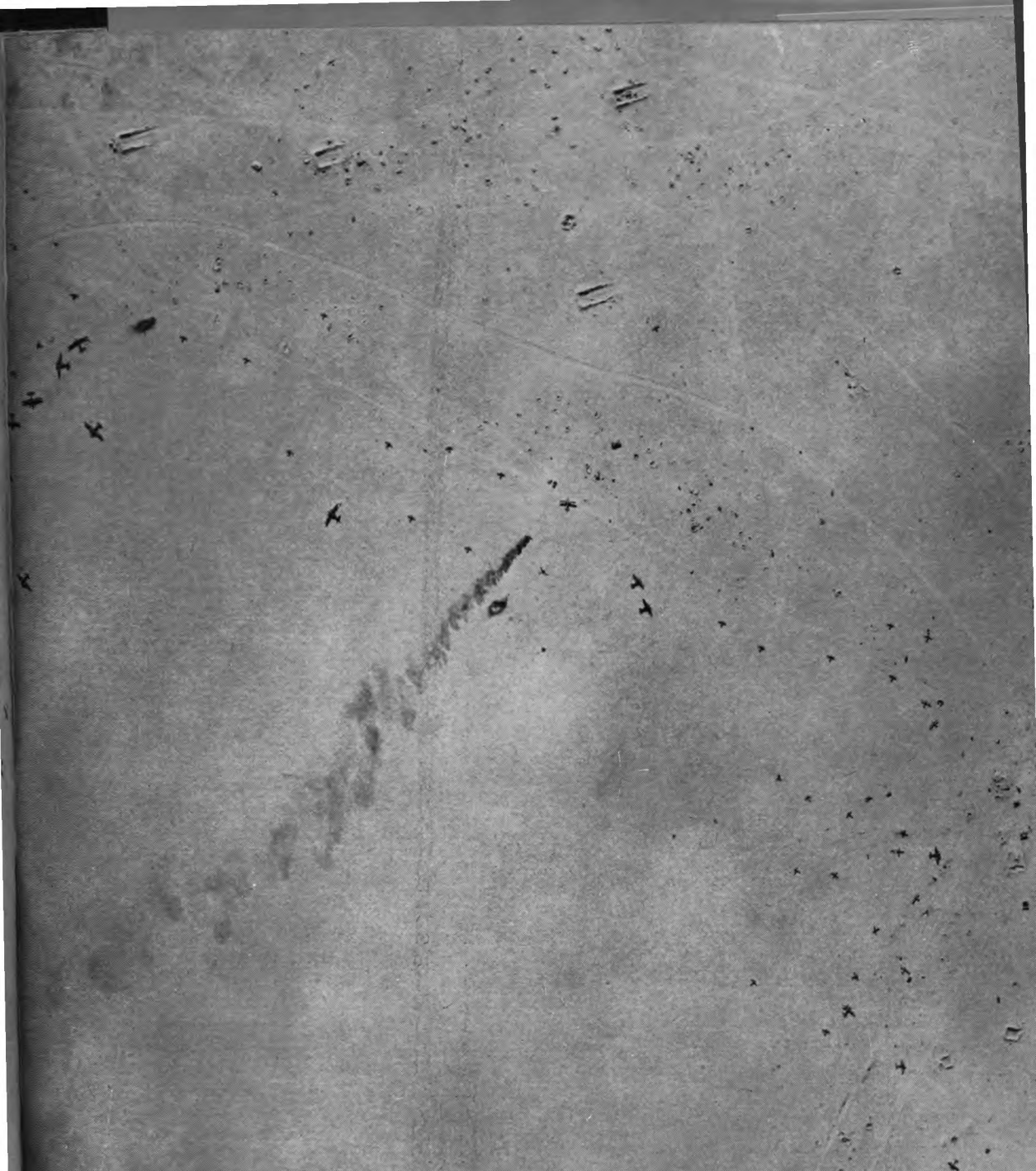

The Luftwaffe gathers for Rommel's last throw. On July 26th, before the Afrika Korps reached Alamein, 112 aircraft were counted on this landing ground at Sidi Barrani. This reconnaissance photograph shows 15 Ju. 52s unloading on the S.W. boundary and 75 fighters dispersed round the perimeter and in the horseshoe shelters (a protection from blast). One is burnt out and another is on fire. Thanks to R.A.F. strafing and weak enemy organisation, it was seven days before this force could intervene on any scale in the fighting.

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As the Germans thrust at Alamein, these four men walked into the British lines. Twenty-two days before, their Wellington had force-landed at Tobruk ; they had come 450 miles on foot through hostile desert. It is never too late to come back.

of the Wellingtons, so on the night of June 24/25th that city was given the heaviest raid it had ever suffered. Nearly a hundred bombers took part. Fires were left burning all over the harbour area and the town. It was the last mail run to be made in any strength for many weeks, but it carried a big post.

Next night the medium and heavy bombers turned their attention to the battlefield itself, continuing through the darkness the attack which the light bombers—Baltimores now as well as Bostons—had maintained through the day. The idea was to spread the night bombing as widely as possible in both area and time, to prevent the enemy troops from sleeping and to keep them in continual fear of death. Something approaching 80 Wellingtons were used each night, a good number of them operating twice in the same night, putting back to their bases to be refuelled, re-bombed and rearmed in the darkness, and taking off again for the desert targets. They did not only bomb; they machine-gunned, diving down almost to ground level to rake the laagers of enemy tanks and trucks, the columns drawn off the road for sleep.

By day the Bostons and the Baltimores with their Kittyhawk escorts flew without cease. There were in fact few moments of the whole 24 hours of each day and night when some part of the enemy's tanks, trucks, supply columns was not being bombed or strafed. It did not prevent them from breaking through the defences of Mersa Matruh, but it slowed them up. Their advance was like the movement of a heavy lorry

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on to the wheels of which the air forces were gradually clamping a brake more and more tightly. It was running sufficiently slowly by then to allow our ground troops to take up positions in the narrow bottleneck at Alamein between the sea and the Qattara Depression. The enemy rolled slowly forward to touch up against those defences on June 30th.

Alamein was the last defence line of the Delta. Should it fall, the great supply base of Egypt would most probably pass to the enemy, Malta would necessarily be lost and the aircraft of the Luftwaffe would control the whole of the Mediterranean. Should it fall, who would dare to guess the number of weary months or years which would be added to the length of the war?

That it did not fall is due to the staunch resistance of the 8th Army with its back to the Nile, and to the work of the air force in Egypt during those first six days of July 1942. After some six weeks of fiercest fighting the airmen who were left, reinforced by comrades from the training camps and aircraft that were pouring in through the supply routes and from the repair shops, actually increased the weight of their attack, in collaboration with the British troops on the ground. It was like some athlete, tireless in the middle of a long race, suddenly pulling out a sustained sprint.

On July 1st, the day after his first contact with Alamein, the enemy attacked that position in the north and in the centre, leading with 20 tanks. The light bomber and fighter squadrons were all grouped on a congested series of landing grounds on both sides of the road from Cairo to Alexandria; they seemed merely to have to stretch out one hand to touch the greenness of the Delta fields. From those landing grounds the Bostons and Baltimores took off at first light and continued all day to bomb the German columns. Flying with them as part of the fighter escort went the Kittybombers. Dust was already stirring with the early morning when they reached the target—dust that a moment later billowed up in explosive clouds, through which the Kittybombers dived to add their weight to the bomb load. It went on like that all day. There was little air opposition—only one Me.109 was shot down—but that was partly because other fighter squadrons were strafing the landing grounds near Sidi Barrani, where they destroyed or temporarily disabled 19 enemy aircraft.

When night fell, that first German thrust at Alamein had been repelled. Their fighting vehicles that retreated were given no pause during the night, for within a few minutes of darkness the Wellingtons were over their camp sites, with naval Albacores flying slowly to drop flares illuminating the desert. At the same time Liberators were flying farther yet, to start what was to become a great offensive against Tobruk. And that night, though attention was concentrated on the desert battle, Wellingtons flew far out over the Ionian Sea to torpedo two of a convoy of supply ships.

Next day the panzer divisions made another assault on Alamein. They were met with the same attack from the air. Dust storms got up in the afternoon and hindered flying for a while; but towards evening, as the British troops counter-attacked, the bombers and their fighter escorts delivered two heavy raids in close support.

July 3rd was the peak. The day-bombing pressure reached a record in the number of sorties flown and the weight of bombs dropped. For the

The Luftwaffe interfered spasmodically to bomb the British advanced supplies. A 2,000-pounder bursts near a water truck in the Tel-el-Eisa sector at Alamein. The men crouch behind for cover.

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first time it began to look as though the enemy would withdraw from this immediate assault upon Alamein. Yet on this day the Luftwaffe tried for the first time to interfere on a considerable scale. Its ground organisation, never able to stand the strain of an advance or a retreat as ours did, had managed by then to bring up several squadrons to the forward area.

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Life stands still as Beaufighters sweep up to attack this M.T. convoy. The trucks are stopped, some driven off the road; doors swing open, the men have run for cover. Note the trailers, stacked with fuel drums.

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III. THE CRESCENDO AT ALAMEIN

8—Turning On the Power

THE first check at Alamein was to prove the moment at which the brake finally stopped the German wheel, but nobody knew that at the time. To the squadrons in the desert the fight seemed to get sterner. Not until the beginning of August could one say that a lull had arrived.

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In the air above the battle the light bombers, the fighter-bombers and the fighters swept over in numbers that increased every day. The fighter-bombers in particular reached ever new records for the number of times they attacked. "The area teems with targets," said one of the pilots; "when you go back with another present for the Hun, and your guns reloaded, and see the fires and smoke and craters left by the squadron you passed on the way out, you think, 'Oh hell, if we can only keep this up long enough we shall do in the whole darn lot of them.' "

A good many of the enemy seemed to think so, too. While it was soon to be rumoured that Mussolini, democratically attired in the uniform of a corporal, had arrived in North Africa to lead a triumphal march into Alexandria, and while the Axis radio was busily fixing dates for the occupation of Cairo, few letters or diaries which we captured from troops taking part in the battle itself omitted reference to the hell they were receiving night and day from the R.A.F. "English bombing attack the whole day," noted one German infantryman in his diary, "result, did not eat or drink very well." Another wrote, on July 8th, "At 1015 hours we were attacked by 20 bombers. One sees no German aircraft!" While Mussolini was said to be reviewing some of his troops in the back areas of Tobruk, others were trickling across at Alamein as deserters, one such complaining wearily that the war was so long, there were so many casualties, the bombing raids never stopped and he had not slept for eight nights.

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This so alarmed the Luftwaffe that at dawn next day they had a standing fighter patrol over Daba. It helped them not at all, for that morning the bombers and fighter-bombers switched their attack to the landing grounds at Fuka.

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Air power helps to lay the foundations of victory at Alamein. Rommel's last thrust for Egypt is broken, his supply lines are blasted, his air force is shot out of the sky and paralysed on the ground.

While the Messerschmitts vainly circled the one set of landing grounds, the Bostons were getting direct hits on two and very near misses on 10 more aircraft at the other. Again the Kittyhawks dived through the exploding dust. They did two circuits, one to bomb, one to strafe. "The second time, we came in a long procession with the guns cracking. The rows or groups of aircraft we saw were riddled like colanders. I saw bits and pieces of wrecked aircraft flying up into the dust, and some collapsing on their bellies." A petrol bowser that stood among three aircraft which were being refuelled was blown up. An Italian fighter that ventured too near was shot down.

Next day not a single enemy fighter interfered with our bombing formations. A few Messerschmitts were sighted at dusk, but they sheered off. It was estimated that in those two days something like a hundred enemy aircraft had been damaged, heavily or slightly, on the ground at Daba and Fuka. "Well done, the aerodrome attackers," signalled Air Vice-Marshal Coningham.

By night, towards the end of July, the Wellington bombers also returned to the desert landing ground targets. "These attacks," the crews were told in an operational order, "are causing the enemy losses in men and war material and also loss of sleep. He must be brought to exhaustion point by lack of sleep and by continued attacks on his armour."

Using the method which had already proved its value, naval Albacores went out with flares to illuminate the desert for scores of Wellingtons each night. Always the crews were able to return with an account of numerous fires starting among the dark shadows of the enemy positions, trucks blowing up, dumps exploding. Sometimes the damage was spectacular, as when one Wellington bombed a dump that was outlined beneath a flare. There was an enormous red flash which lit up the whole area. The noise of the explosion, even above the beat of the engines, temporarily deafened the Wellington crew. Its blast shattered the perspex in the bomb-aimer's panel and blew the aircraft hatch right out. Then black smoke rose to a height of 5,000 feet, "just like treacle." The bomber had to wait for a quarter of an hour before there was sufficient visibility for a second run.

The battlefield itself, however, had by now become only a secondary target for the night bombers. Tobruk was the place, Tobruk and Benghazi. Air Commodore A. P. Ritchie, A.F.C., the bomber commander, had two types of weapon with which he could strike—the medium bomber, which was the bulk of his force, and the heavy bomber. The retreat to Alamein had deprived him of many landing grounds and cut down his range badly. The medium Wellington bombers were forced back to the Canal zone with refuelling grounds on the Alexandria road; the Liberators of the R.A.F. and of the Halverson Detachment, supplemented now by the arrival of some Halifaxes from Britain, were right back in Palestine. The twin-engine Wellingtons could reach only Tobruk, but the four engines of the Liberators and the Halifaxes would take them still to Benghazi. Air Commodore Ritchie issued an order: "Tobruk and Benghazi harbours are the front and back doors through which the enemy is getting his supplies. The front door is being slowly closed to him. There must be no back door."

During the month of July the front door of Tobruk was attacked in force 33 times, mostly at night but sometimes by day; the back door at Benghazi was attacked by heavy-bomber formations seven times during daylight.

For the defence of Tobruk the Germans

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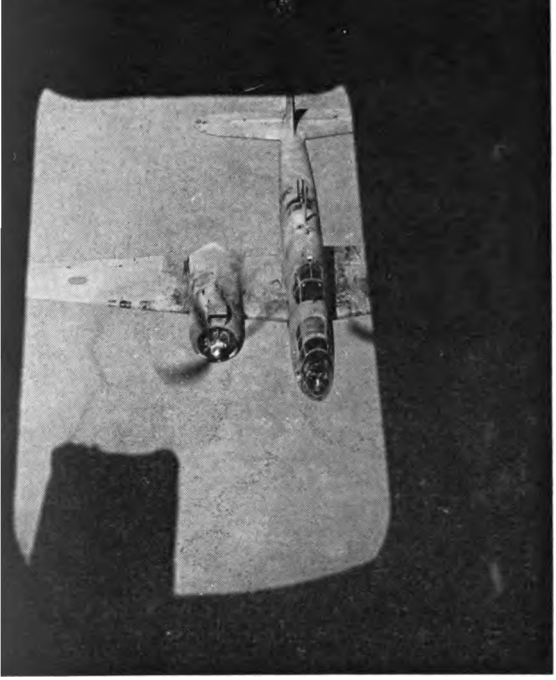

As Rommel advanced, the air-brake tightened. A Baltimore, seen through the hatch of another, on the shuttle-service which bombed all day, every day.

most advanced landing ground, the rest of the fighters being a little to the south-east at Sidi Azeiz. They had stayed closer to the enemy on the ground than any air force of such size had done before, in order to give the greatest possible cover to the retreat of the land forces. They were prepared to be and were among the last units of all the Allied forces to withdraw across the frontier. To accomplish this they took considerable risk on the night of June 17th.

There is on Baheira airfield a little underground concrete cell for an operations room: there, when the aircraft were scattered over dispersal areas for the night, some officers collected in the light of a hurricane lamp to receive by signal and field telephone news of the enemy. The camps around the airfield had all been struck, most of the tents bundled into trucks which stood ready to move off at 10 minutes' notice. Men slept beside the trucks, in the shelter of slit trenches.

The messages that came into the operations room were not reassuring. The enemy tanks had not halted with darkness, but were still advancing over the desert, though more slowly by moonlight. The nearest were not more than 15 miles distant. By midnight they were on the escarpment near Gasr el Arid, being engaged by the Free French in the darkness. The moon had set. An hour later they had come north on to Gambut main airfield, across which a minor battle was moving. By 2 o'clock in the morning they were driven from Gambut and nobody was quite certain whither they had gone. They were said to have turned to the north-east somewhat in the direction of the squadrons immobile on Baheira. Messengers were sent round the truck lines, rousing the sleepers to be ready to move off at first light. At each aircraft the mechanics stood on guard. Here and there in tents the men chewed bacon sandwiches, swallowed mugs of hot tea.

It was a relief when the sun rose, for then it was certain that the aircraft could get away. The German tanks were still 12 miles distant.

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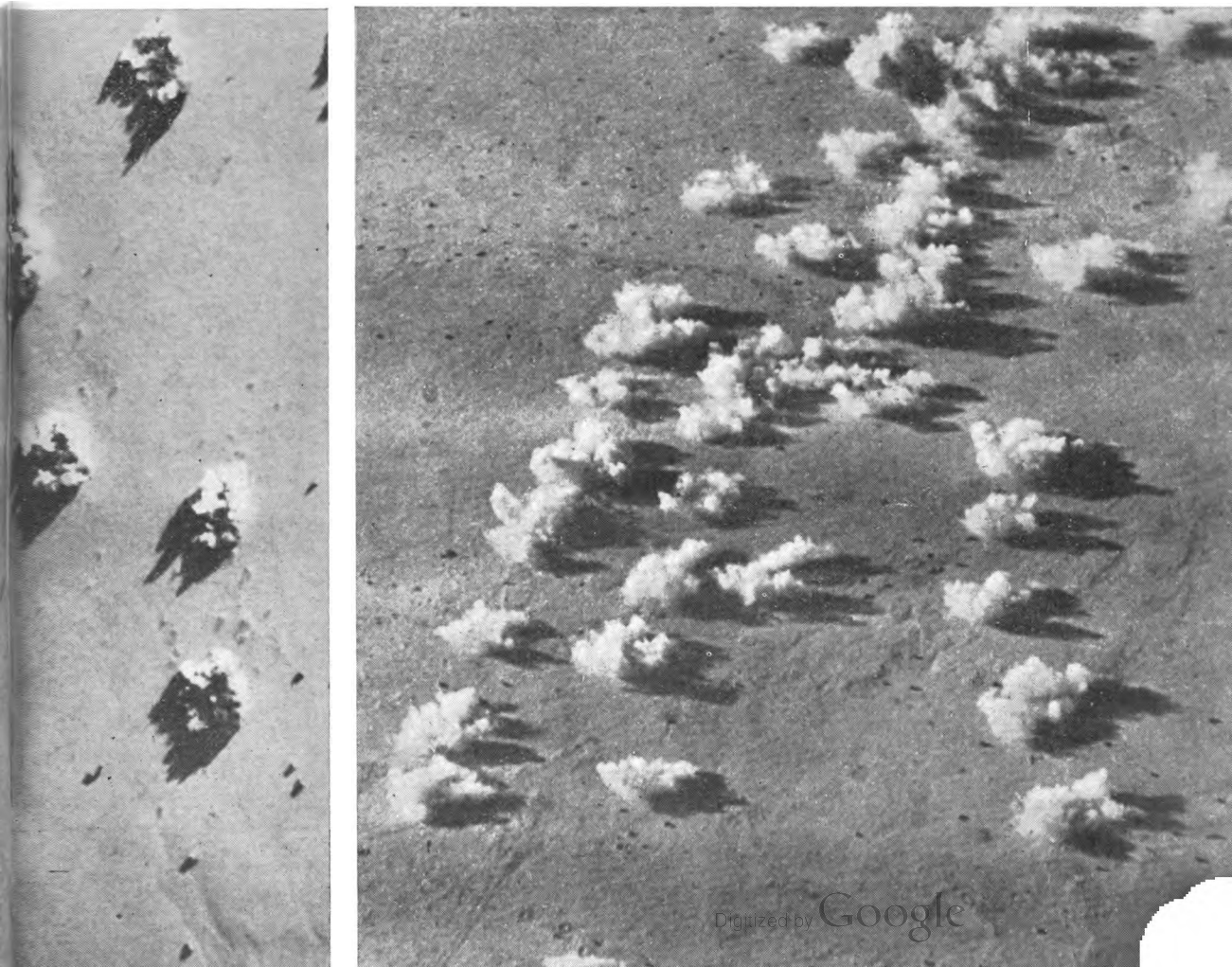
The pilots got into their aircraft and took off for day-long patrols over the retreating forces—patrols on which not a single enemy fighter was met. Aircraft that were normally unserviceable were successfully flown off, one with no instrument panel. There were two Bostons in a sad state. Their ground crews begged to be left behind with a couple of cars, hoping to make the Bostons fly before the enemy arrived, but the squadron commander decided the risk was too great. The two Bostons were fired, the smoke billowing black across a sky already hardening into the blue of the day.

Nothing was left for the enemy. All that could be carried was placed in the trucks to bump across the camel-thorn hillocks to safety; the rest was destroyed. Officers with picks spilled all the petrol drums. Small parties scoured the landing grounds to salvage any odd things of value that had been forgotten. One man was busily arranging empty beer tins upside-down in a case to give the impression either that they were a booby trap, or even—glorious haul—that they were full.

Behind the squadrons came the salvage parties with their cranes and their trucks, lifting damaged aircraft that could not be flown. One bomber they towed along the Trigh Capuzzo behind a car. The air force left behind on its landing grounds exactly five aircraft, all of which were either burned or had already been damaged beyond repair. Compare that with the enemy's

" An avenue of smoke and sand advanced across the desert, looking like a wide glade of woolly white trees in a Disney forest. Somewhere beneath it crouched the tanks and trucks and men of the enemy."



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retreat during the previous winter, when he left more than 200 of his aircraft on the landing grounds from which he fled, many of them scarcely damaged.

It was the same story with the petrol and bombs carried back by the supply and transport columns of the R.A.F. One small column brought back in several journeys 260,000 gallons of aviation petrol and about 300 heavy bombs. The last trucks, loaded under shellfire, got away only by striking out for little-known desert tracks.

At the gaps in the frontier wire it seemed that every truck in the world had gathered. The whole desert was a moving pattern of trucks, the finest target the enemy strafers had ever been offered. But the only aircraft that flew overhead were Hurricanes and Kittyhawks. The Messerschmitts lay broken on the landing grounds at Gazala.

By nightfall the squadrons were reorganised on new landing grounds behind the frontier. The position was then as if the campaign of the previous winter had never been fought. Our troops were back on the Egyptian frontier with a strong garrison in Tobruk. The fighter squadrons were on landing grounds behind the wire; Tobruk was out of their range, as it had been all the summer of 1941. The squadrons themselves were decimated. Some were down to a couple of serviceable aircraft, a handful of pilots. Several were sent back to base to re-equip and to train in order to start all over again the weary process of 1941, the building-up of supplies, the running of convoys to Tobruk and another big campaign in the autumn. That was what was envisaged.

On June 20th a piece of news went round the desert that was at first condemned angrily as a mischievous rumour, but it was true. Tobruk had fallen. Tobruk with all its garrison and its vast stores. A heavy artillery and air bombardment in which the R.A.F. could not intervene because of range had preceded a tank assault. A few reconnaissance aircraft which had remained inside the perimeter managed to fly out; the ground units of the air force were captured.

It meant that the frontier could not be held. The line south from Mersa Matruh was chosen for a stand. The enemy was up against those defences by June 26th.

Two days previously the air force had been called upon to make an all-out effort. It was evident that Benghazi would soon be out of range

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The Luftwaffe gathers for Rommel's last throw. On July 26th, before the Afrika Korps reached Alamein, [illegible] 112 aircraft were counted on this landing ground at Sidi Barrani. This reconnaissance photograph shows [illegible] 15 Ju. 52s unloading on the S.W. boundary and 75 fighters dispersed round the perimeter and in the horseshoe shelters (a protection from blast). One is burnt out and another is on fire. Thanks to R.A.F. strafing [illegible] weak enemy organisation, it was seven days before this force could intervene on any scale in the fight[illegible]

As the Germans thrust at Alamein, these four men walked into the British lines. Twenty-two days before, their Wellington had force-landed at Tobruk ; they had come 450 miles on foot through hostile desert. It is never too late to come back.

of the Wellingtons, so on the night of June 24/25th that city was given the heaviest raid it had ever suffered. Nearly a hundred bombers took part. Fires were left burning all over the harbour area and the town. It was the last mail run to be made in any strength for many weeks, but it carried a big post.

Next night the medium and heavy bombers turned their attention to the battlefield itself, continuing through the darkness the attack which the light bombers—Baltimores now as well as Bostons—had maintained through the day. The idea was to spread the night bombing as widely as possible in both area and time, to prevent the enemy troops from sleeping and to keep them in continual fear of death. Something approaching 80 Wellingtons were used each night, a good number of them operating twice in the same night, putting back to their bases to be refuelled, re-bombed and rearmed in the darkness, and taking off again for the desert targets. They did not only bomb; they machine-gunned, diving down almost to ground level to rake the laagers of enemy tanks and trucks, the columns drawn off the road for sleep.

By day the Bostons and the Baltimores with their Kittyhawk escorts flew without cease. There were in fact few moments of the whole 24 hours of each day and night when some part of the enemy's tanks, trucks, supply columns was not being bombed or strafed. It did not prevent them from breaking through the defences of Mersa Matruh, but it slowed them up. Their advance was like the movement of a heavy lorry

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on to the wheels of which the air forces were gradually clamping a brake more and more tightly. It was running sufficiently slowly by then to allow our ground troops to take up positions in the narrow bottleneck at Alamein between the sea and the Qattara Depression. The enemy rolled slowly forward to touch up against those defences on June 30th.

Alamein was the last defence line of the Delta. Should it fall, the great supply base of Egypt would most probably pass to the enemy, Malta would necessarily be lost and the aircraft of the Luftwaffe would control the whole of the Mediterranean. Should it fall, who would dare to guess the number of weary months or years which would be added to the length of the war?

That it did not fall is due to the staunch resistance of the 8th Army with its back to the Nile, and to the work of the air force in Egypt during those first six days of July 1942. After some six weeks of fiercest fighting the airmen who were left, reinforced by comrades from the training camps and aircraft that were pouring in through the supply routes and from the repair shops, actually increased the weight of their attack, in collaboration with the British troops on the ground. It was like some athlete, tireless in the middle of a long race, suddenly pulling out a sustained sprint.

On July 1st, the day after his first contact with Alamein, the enemy attacked that position in the north and in the centre, leading with 20 tanks. The light bomber and fighter squadrons were all grouped on a congested series of landing grounds on both sides of the road from Cairo to Alexandria; they seemed merely to have to stretch out one hand to touch the greenness of the Delta fields. From those landing grounds the Bostons and Baltimores took off at first light and continued all day to bomb the German columns. Flying with them as part of the fighter escort went the Kittybombers. Dust was already stirring with the early morning when they reached the target—dust that a moment later billowed up in explosive clouds, through which the Kittybombers dived to add their weight to the bomb load. It went on like that all day. There was little air opposition—only one Me.109 was shot down—but that was partly because other fighter squadrons were strafing the landing grounds near Sidi Barrani, where they destroyed or temporarily disabled 19 enemy aircraft.

When night fell, that first German thrust at Alamein had been repelled. Their fighting vehicles that retreated were given no pause during the night, for within a few minutes of darkness the Wellingtons were over their camp sites, with naval Albacores flying slowly to drop flares illuminating the desert. At the same time Liberators were flying farther yet, to start what was to become a great offensive against Tobruk. And that night, though attention was concentrated on the desert battle, Wellingtons flew far out over the Ionian Sea to torpedo two of a convoy of supply ships.

Next day the panzer divisions made another assault on Alamein. They were met with the same attack from the air. Dust storms got up in the afternoon and hindered flying for a while; but towards evening, as the British troops counter-attacked, the bombers and their fighter escorts delivered two heavy raids in close support.

July 3rd was the peak. The day-bombing pressure reached a record in the number of sorties flown and the weight of bombs dropped. For the

The Luftwaffe interfered spasmodically to bomb the British advanced supplies. A 2,000-pounder bursts near a water truck in the Tel-el-Eisa sector at Alamein. The men crouch behind for cover.

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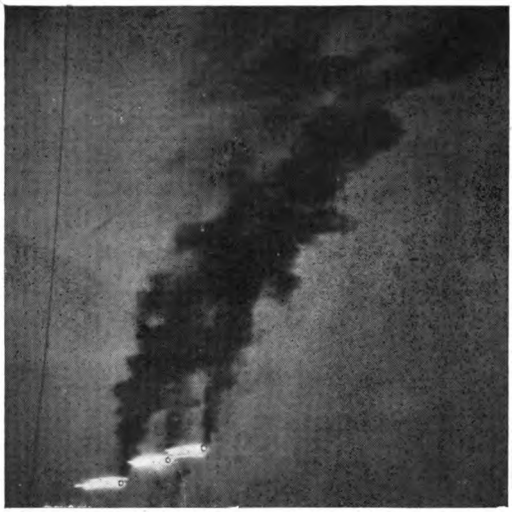

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Tobruk was the target at this time ; it was the front door for Rommel's supplies. While the shutter was open for this photograph, taken 10,000 feet above an El Gubi landing ground, lights streaked across the moving film from (1) two small fires just off the area photographed, (2) incendiaries beginning to burn, (3) a parachute flare dropped to illuminate the target. The instantaneous photoflash revealed (4) a stick of four bomb-bursts among (5) dispersed stores and equipment, and (6) smoke plumes rising from the two fires.

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To shut the front door, American heavy bombers join the assault on Tobruk. *Left*, a precision attack on the area round the main jetty. *Right*, next day, the jetty is seen to have been destroyed and a merchant vessel

Before he could pass his supplies through the back door, however, the enemy had first to get them there; afterwards he had to carry them right across Cyrenaica and much of Egypt before they could be used at Alamein. All the way they were vulnerable to air attack, though not with such ease now that we had lost the coastal airfields of the desert. Malta, isolated and on thin rations since it was at that time impossible to run convoys from Alexandria to the island, still had some striking power against ships at sea. From Egypt the heavy bombers could reach out to some of the northern harbours.

The most persistent damage was done to the enemy supplies by the Beaufighters with their long range and their 12 guns. The enemy had a choice of two supply routes from Benghazi to the front. It was too dangerous after a few weeks of nightly bombing for many ships of size to run into Tobruk, so the supplies were split up into small lots and carried forward either in trucks along the coast road or in barges, lighters and small vessels just off shore. The Beaufighters chose the shipping traffic for the first weight of their attack. Day after day they roamed in small formations up and down the coast seeking targets, always at the risk of concentrated attack from the Messerschmitts and Macchis which were so readily available on the coastal airfields.

During the first days in August the Beaufighters

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which was alongside it is still burning. The squat, almost square boats in the harbour are Siebel ferries, first seen off the West coast of Greece. The stick-like ships at the opposite shore are F-boats, Italian supply barges.

were sinking barges or setting them on fire one after the other. Some of them exploded when the cannon shells touched off their cargoes of ammunition or petrol. On August 7th they sunk five barges within 12 hours. During the three weeks ended August 9th more than 20 barges and lighters were destroyed. That does not, perhaps, sound a very important thing. But those barges could carry as much cargo as about 1,500 three-ton trucks. They could handle tanks of the largest size. The enemy prized their usefulness so highly that they were given the most elaborate protection. Guns were mounted on them, flakships sailed by their side, squadrons of fighters stood ready on shore at their call. Barge-strafing, in fact, became just a little too hot even for Beaufighters.

They promptly switched their attacks on to the columns of trucks winding wearily along the coast road. One day they appeared suddenly near Sidi Barrani where troop-transport columns were crowded together. In a few seconds trucks were heeled over and on fire, scores of men were dropping from the crowd that scattered and ran for the desert. Another day they were over the pass at Sollum, a fiendish place to be attacked, with rock wall rising steeply on one side of the road and a near precipice dropping away on the other. Yet again they came across 100 infantrymen marching along the road. About 50 were

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killed before they could scatter. On the way home the Beaufighters shot down two Ju.52s.

The enemy withdrew some of his protection from the coastal traffic to fly it up and down the road. Back on to the barges went the Beaufighters, the Hudsons and the Bisleys—aircraft developed from the staunch old Blenheim which had been added to the force, and flown by S.A.A.F. crews. On August 15th Beaufighters escorted six of them in an attack line abreast on 16 barges between Sidi Barrani and Matruh. The Bisleys scored five direct hits, and three barges simply disappeared. The Beaufighters shot down into the sea a Macchi 202 from numbers of enemy fighters which attempted to interfere.

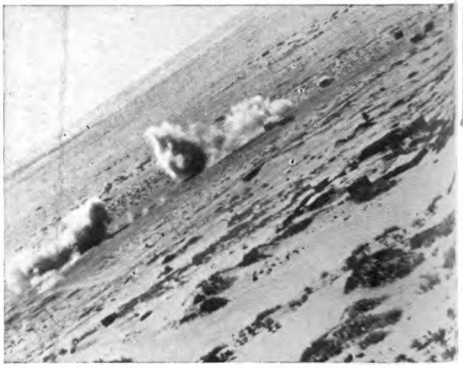
Out over the Mediterranean at night the torpedo-carrying Wellingtons sought more ambitious targets. Their job was to sink the supplies in bulk before they reached the African coast at all. They were so badly handicapped by the loss of the coastal airfields of the desert that they had little luck for many weeks. The supply ships simply sailed well out of their range. But towards the end of August Rommel decided to make his bid for the final defeat of the 8th Army and the capture of the Delta. He needed a last-minute rush of supplies and thought it worth while to attempt to run them into Tobruk; the risk was necessary in order to have a supply concentration for the battle.

That decision brought the ships within range of the Wellingtons. On August 28th a Maryland on reconnaissance found a number of ships steaming to the west of Crete, strongly escorted by destroyers. Immediately at darkness a striking-force of Wellingtons and Liberators, some carrying bombs and some of the Wellingtons torpedoes, set out to search for them. A bomber scored first. Due north of Derna it hit a tanker which blew up. That blow alone knocked off some of the miles which the German tanks could travel over the desert. The destroyers hastily whipped around the ships, laying smoke screens. A second force of torpedo and bomber Wellingtons took off to attack the one remaining tanker and the other merchant ships. A bomber hit one of these and it exploded with a force that rocked the aircraft. One of the torpedo Wellingtons found the tanker which was carrying high-grade aviation fuel for the Messerschmitts. The pilot, Flight Lieutenant M Foulis, D.F.C., described the hunt thus:

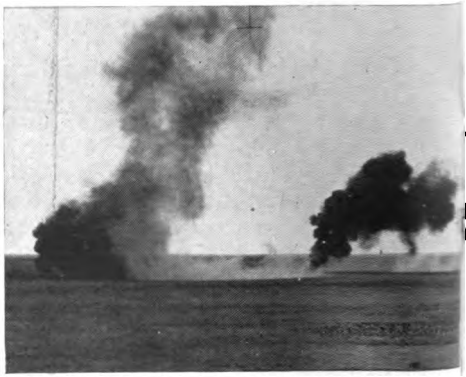
"We sighted the ships at 0015 hours in the

As the bombers hammered

1. The most persistent damage was done by the Beaufighters, with their 12 guns.



4. Enemy supply column swept by cannon—photographed as the pilot comes in to attack.



7. The same patrol in the same afternoon, left these two petrol bowsers burning fiercely.

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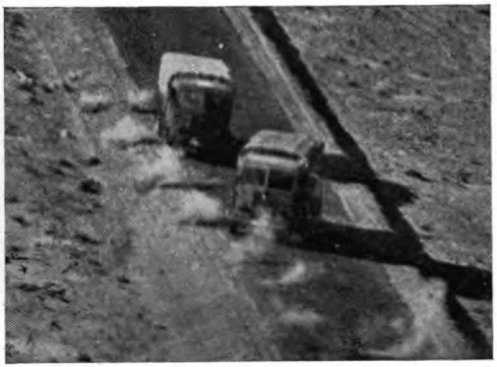
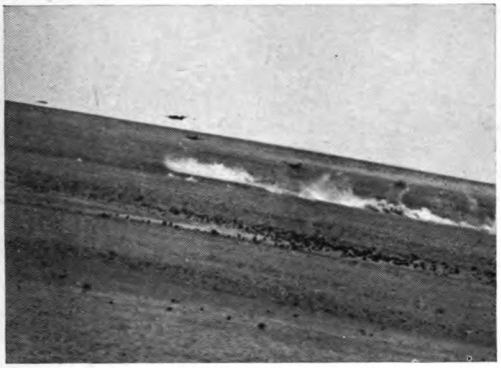
the ports, fighters ranged the land and air routes, burning, destroying.

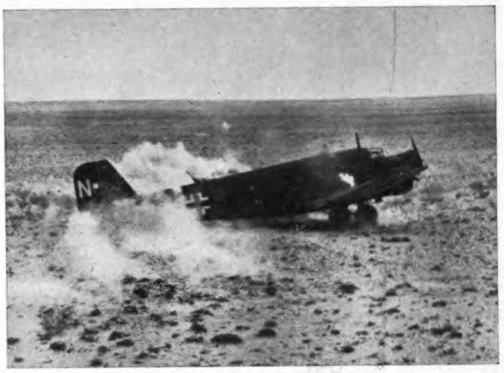


2. A burst of bullets rips across two lorries, caught on the coast road south of Benghazi.

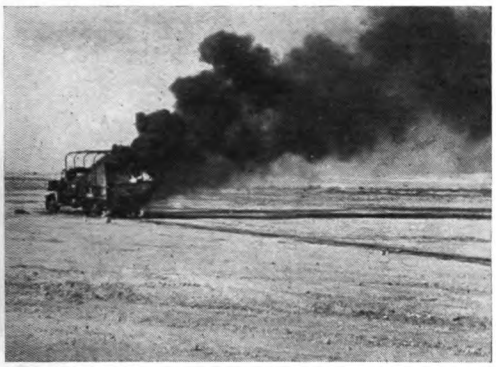
3. Part of the same convoy at the moment of attack. A man crouches behind the rear lorry.



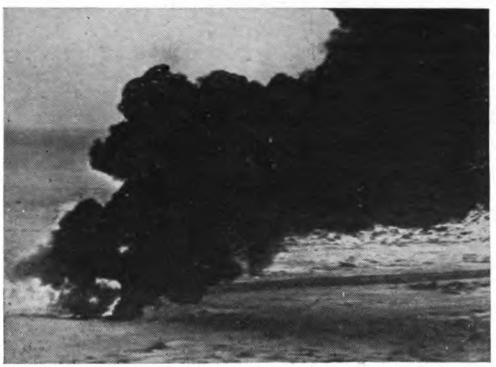
5. A Beaufighter patrol has forced down a Ju. 52 transport and is now destroying it.



6. Close-up of the Ju. 52. The starboard engine is on fire ; note the man lying by the nose.



8. Enemy supplies burn briskly after a raid by light bombers. The lorry had reached Sidi Barrani.



9. This burning petrol bowser, those in 7, the Ju. 52, the train on p. 99 were one afternoon's work.

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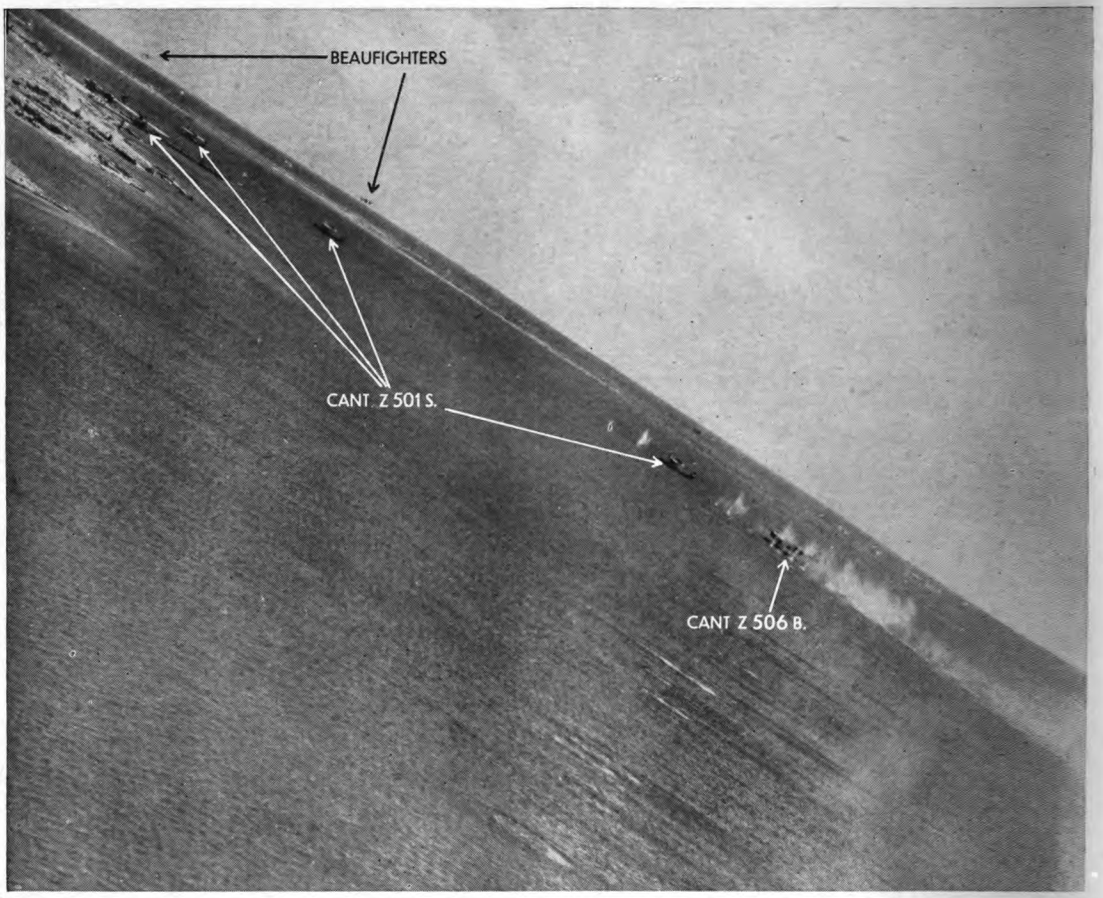

The Beaufighters also ranged along the coast, attacking mainly the barges bringing supplies from Benghazi. This patrol shot up four seaplanes at Bomba ; it then swooped inland, surprising troops washing their clothes on the beach (the camera has caught the moment of first alarm) ; it attacked a camp near Gazala, where the men have gone to cover and a tent is on fire in the foreground.

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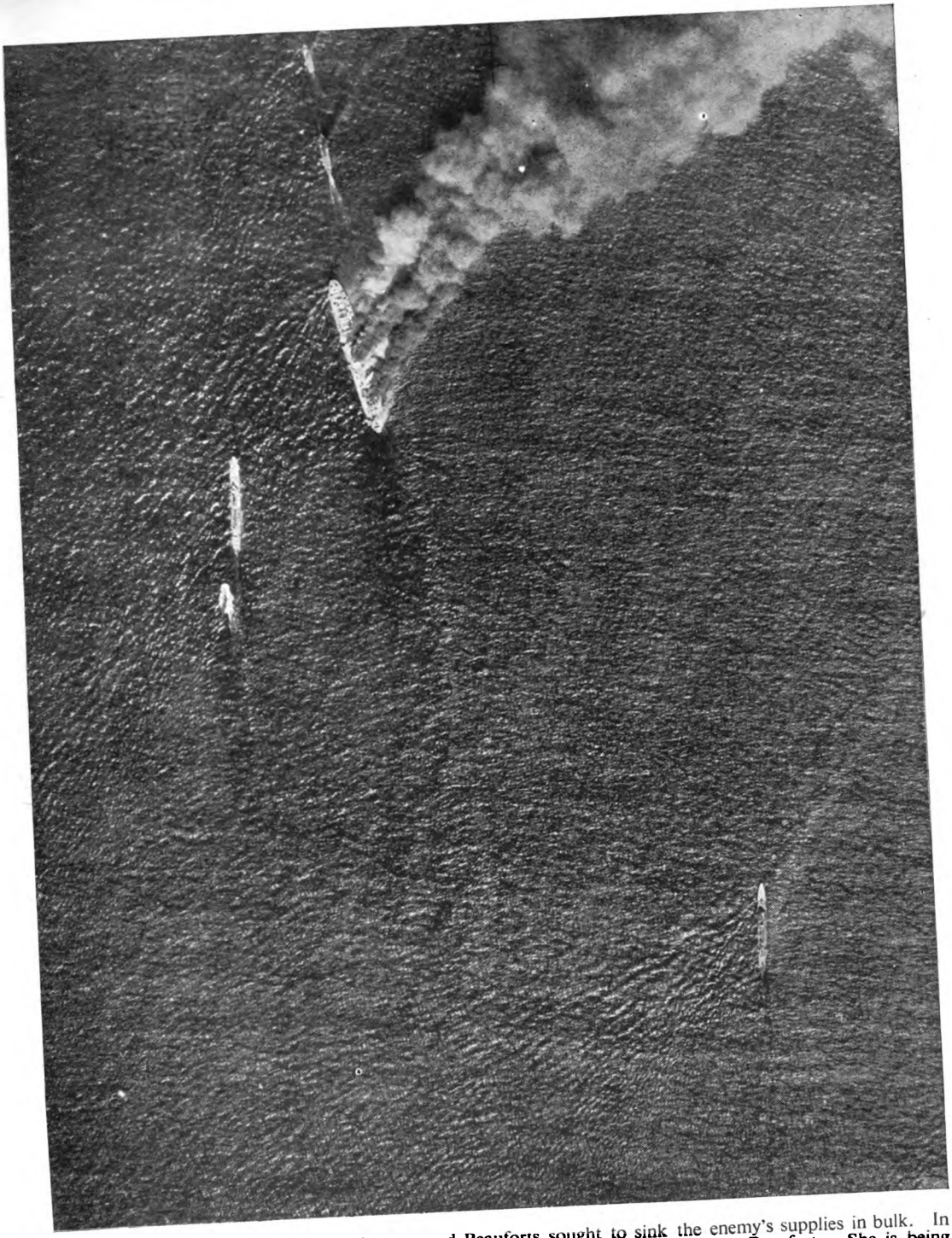

Out over the Mediterranean, Wellingtons and Beauforts sought to sink the enemy's supplies in bulk. In this picture a 7,000-ton merchant vessel of the Lerici class has been set on fire by Beauforts. She is being towed back towards Greece, stern foremost, by two tugs, while two destroyers and an Italian E-boat stand by.

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III. THE CRESCENDO AT ALAMEIN

8—Turning On the Power

THE first check at Alamein was to prove the moment at which the brake finally stopped the German wheel, but nobody knew that at the time. To the squadrons in the desert the fight seemed to get sterner. Not until the beginning of August could one say that a lull had arrived.

On the ground around the Alamein positions, attack and counter-attack succeeded each other as the 8th Army rallied from the unavoidable disorganisation of such a retreat and coiled its springs. The Germans felt for an advance in the south and we checked them with an attack in the north on July 9th. Five days later they struck at Alamein from the south-west and failed. By July 20th we had attacked and moved slightly westward, recapturing the Hill of Jesus.

In the air above the battle the light bombers, the fighter-bombers and the fighters swept over in numbers that increased every day. The fighter-bombers in particular reached ever new records for the number of times they attacked. "The area teems with targets," said one of the pilots; "when you go back with another present for the Hun, and your guns reloaded, and see the fires and smoke and craters left by the squadron you passed on the way out, you think, 'Oh hell, if we can only keep this up long enough we shall do in the whole darn lot of them.' "

A good many of the enemy seemed to think so, too. While it was soon to be rumoured that Mussolini, democratically attired in the uniform of a corporal, had arrived in North Africa to lead a triumphal march into Alexandria, and while the Axis radio was busily fixing dates for the occupation of Cairo, few letters or diaries which we captured from troops taking part in the battle itself omitted reference to the hell they were receiving night and day from the R.A.F. "English bombing attack the whole day," noted one German infantryman in his diary, "result, did not eat or drink very well." Another wrote, on July 8th, "At 1015 hours we were attacked by 20 bombers. One sees no German aircraft!" While Mussolini was said to be reviewing some of his troops in the back areas of Tobruk, others were trickling across at Alamein as deserters, one such complaining wearily that the war was so long, there were so many casualties, the bombing raids never stopped and he had not slept for eight nights.

By July 15th one squadron alone of the South African Bostons was celebrating its 1,000th bombing sortie. The tank-busters, seeking out targets usually in the southern sector on the edge of the Qattara Depression, led that day a concerted attack on enemy tanks. Bombers, fighter-bombers and tank-busters between them knocked out something approaching 20 tanks, three of which were known to be completely destroyed.

A few days later it was felt that the Luftwaffe was establishing itself a little too comfortably on the landing grounds around Daba. In spite of dust-storms that swirled intermittently on July 19th, the light bombers got several direct hits on aircraft on those landing grounds, the fighter-bombers diving in afterwards. On the way down they found four Ju.52s and a Stuka coming in to land. While still carrying bombs, they shot all five of them down, then bombed and strafed the landing ground, destroying or damaging many more aircraft. Wellingtons in great force raided Daba just after nightfall, leaving a trail of flame 300 yards long and still spreading as the petrol spread.

This so alarmed the Luftwaffe that at dawn next day they had a standing fighter patrol over Daba. It helped them not at all, for that morning the bombers and fighter-bombers switched their attack to the landing grounds at Fuka.

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During the first days in August the Beaufighters

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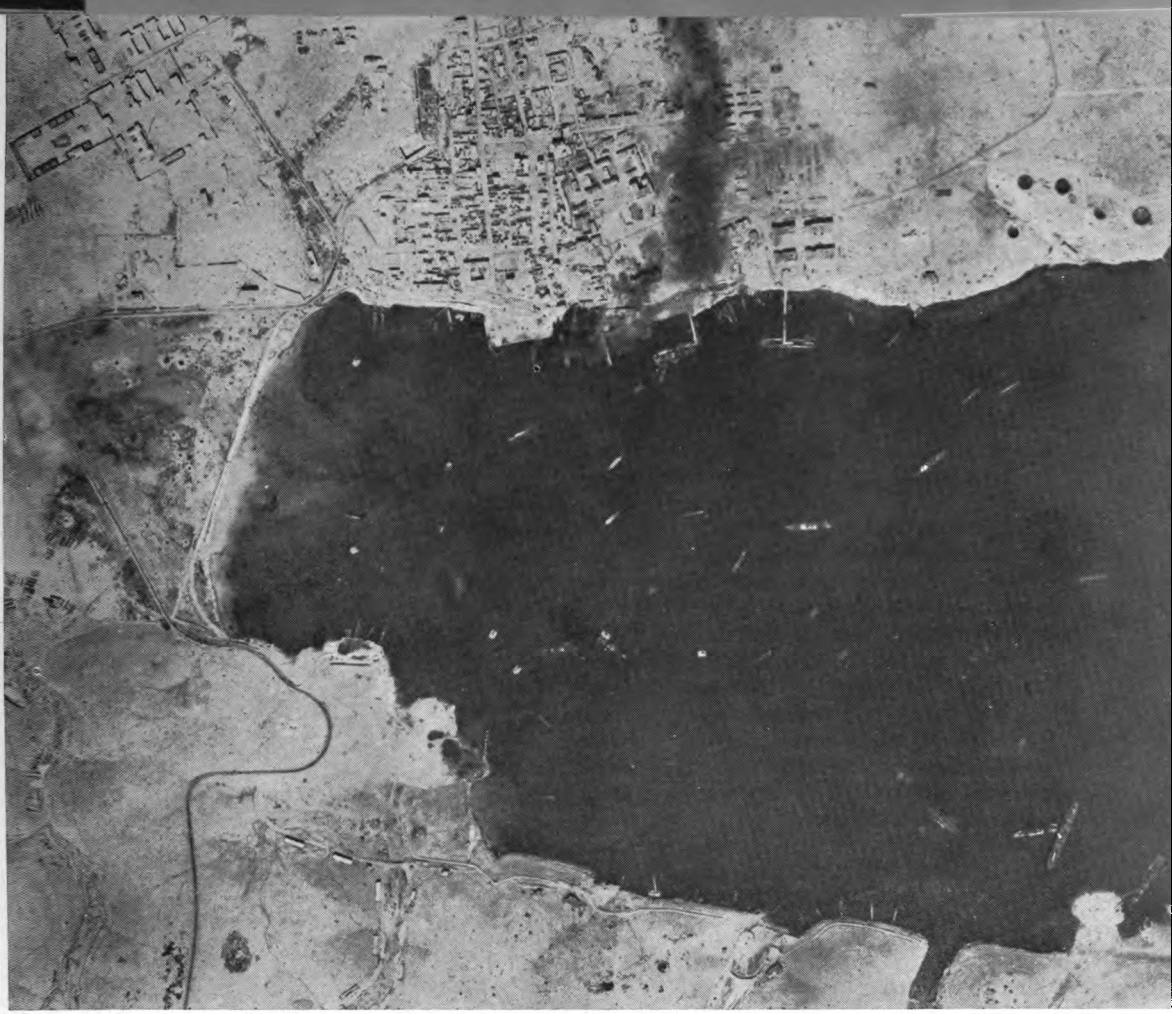

which was alongside it is still burning. The squat, almost square boats in the harbour are Siebel ferries, first seen off the West coast of Greece. The stick-like ships at the opposite shore are F-boats, Italian supply barges.

were sinking barges or setting them on fire one after the other. Some of them exploded when the cannon shells touched off their cargoes of ammunition or petrol. On August 7th they sunk five barges within 12 hours. During the three weeks ended August 9th more than 20 barges and lighters were destroyed. That does not, perhaps, sound a very important thing. But those barges could carry as much cargo as about 1,500 three-ton trucks. They could handle tanks of the largest size. The enemy prized their usefulness so highly that they were given the most elaborate protection. Guns were mounted on them, flakships sailed by their side, squadrons of fighters stood ready on shore at their call. Barge-strafing, in fact, became just a little too hot even for Beaufighters.

They promptly switched their attacks on to the columns of trucks winding wearily along the coast road. One day they appeared suddenly near Sidi Barrani where troop-transport columns were crowded together. In a few seconds trucks were heeled over and on fire, scores of men were dropping from the crowd that scattered and ran for the desert. Another day they were over the pass at Sollum, a fiendish place to be attacked, with rock wall rising steeply on one side of the road and a near precipice dropping away on the other. Yet again they came across 100 infantrymen marching along the road. About 50 were

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killed before they could scatter. On the way home the Beaufighters shot down two Ju.52s.

The enemy withdrew some of his protection from the coastal traffic to fly it up and down the road. Back on to the barges went the Beaufighters, the Hudsons and the Bisleys—aircraft developed from the staunch old Blenheim which had been added to the force, and flown by S.A.A.F. crews. On August 15th Beaufighters escorted six of them in an attack line abreast on 16 barges between Sidi Barrani and Matruh. The Bisleys scored five direct hits, and three barges simply disappeared. The Beaufighters shot down into the sea a Macchi 202 from numbers of enemy fighters which attempted to interfere.

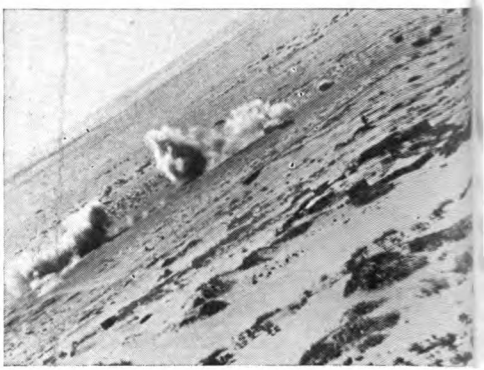
Out over the Mediterranean at night the torpedo-carrying Wellingtons sought more ambitious targets. Their job was to sink the supplies in bulk before they reached the African coast at all. They were so badly handicapped by the loss of the coastal airfields of the desert that they had little luck for many weeks. The supply ships simply sailed well out of their range. But towards the end of August Rommel decided to make his bid for the final defeat of the 8th Army and the capture of the Delta. He needed a last-minute rush of supplies and thought it worth while to attempt to run them into Tobruk; the risk was necessary in order to have a supply concentration for the battle.

That decision brought the ships within range of the Wellingtons. On August 28th a Maryland on reconnaissance found a number of ships steaming to the west of Crete, strongly escorted by destroyers. Immediately at darkness a striking-force of Wellingtons and Liberators, some carrying bombs and some of the Wellingtons torpedoes, set out to search for them. A bomber scored first. Due north of Derna it hit a tanker which blew up. That blow alone knocked off some of the miles which the German tanks could travel over the desert. The destroyers hastily whipped around the ships, laying smoke screens. A second force of torpedo and bomber Wellingtons took off to attack the one remaining tanker and the other merchant ships. A bomber hit one of these and it exploded with a force that rocked the aircraft. One of the torpedo Wellingtons found the tanker which was carrying high-grade aviation fuel for the Messerschmitts. The pilot, Flight Lieutenant M Foulis, D.F.C., described the hunt thus:

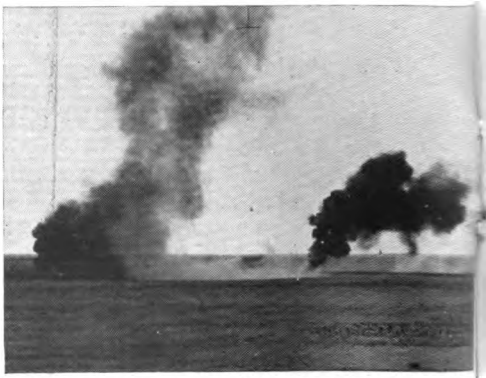
"We sighted the ships at 0015 hours in the

As the bombers hammered

1. The most persistent damage was done by the Beaufighters, with their 12 guns.



4. Enemy supply column swept by cannon—photographed as the pilot comes in to attack.



7. The same patrol, in the same afternoon, left these two petrol bowsers burning fiercely.

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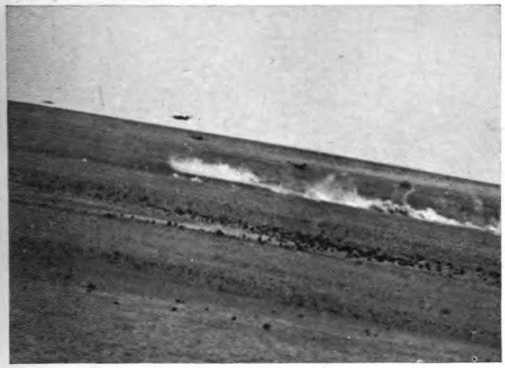
...ne ports, fighters ranged the land and air routes, burning, destroying.

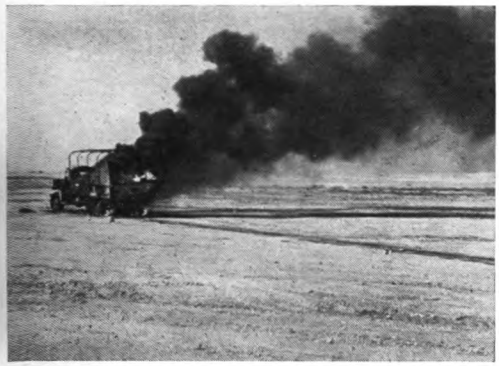
2. A burst of bullets rips across two lorries, caught on the coast road south of Benghazi.

3. Part of the same convoy at the moment of attack. A man crouches behind the rear lorry.

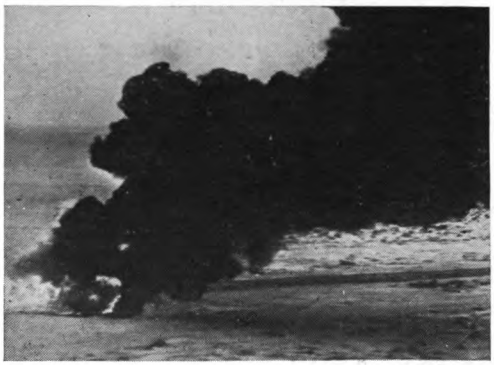


5. A Beaufighter patrol has forced down a Ju. 52 transport and is now destroying it.

6. Close-up of the Ju. 52. The starboard engine is on fire ; note the man lying by the nose.



8. Enemy supplies burn briskly after a raid by light bombers. The lorry had reached Sidi Barrani.



9. This burning petrol bowser, those in 7, the Ju. 52, the train on p. 99 were one afternoon's work.

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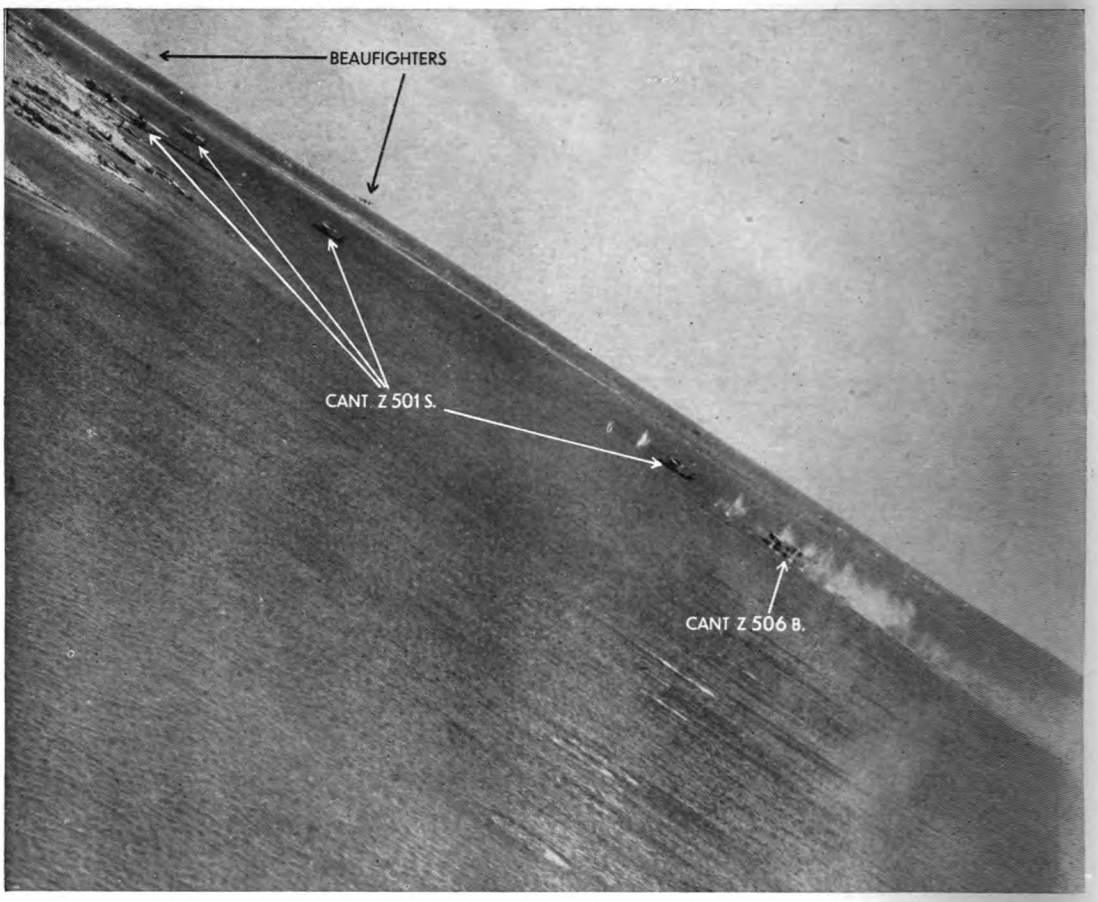

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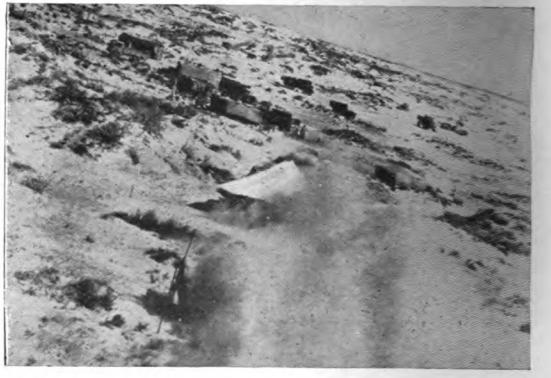

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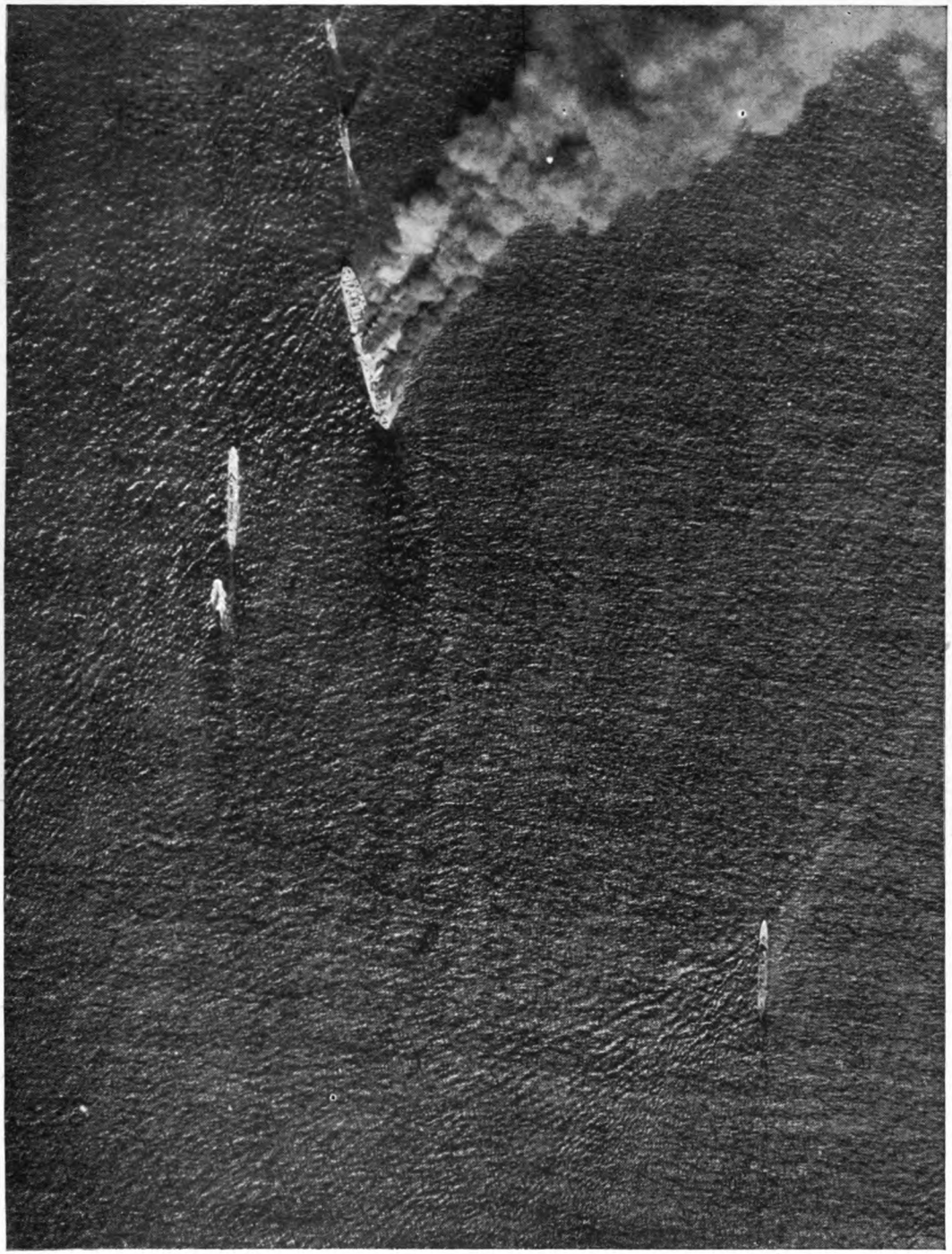

Out over the Mediterranean, Wellingtons and Beauforts sought to sink the enemy's supplies in bulk. In this picture a 7,000-ton merchant vessel of the Lerici class has been set on fire by Beauforts. She is being towed back towards Greece, stern foremost, by two tugs, while two destroyers and an Italian E-boat stand by

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9—Wall of Artillery, Ceiling of Bombs

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August. Apart from the heat and a plague of flies, the squadrons lived more comfortably than they had ever done. Water was good and plentiful; the recreations of Alexandria were to hand; and, with shops so near, such luxuries as fruit, roast chicken, even mint sauce appeared on trestle tables in the mess tents. Men came back from the city with new books still in their dust covers. The desert airmen gratefully absorbed a few civilised comforts for a change, knowing that the battle would soon begin; with one eye on the south of the line they sang new words to the old jingle, "Coming down the mountain"—"They'll be coming through Qattara when they come, when they come."

It was in fact in the south, though not in the Qattara Depression itself, that on the night of August 30th/31st Rommel launched his delayed attack with the full strength of the Afrika Korps. While the Italians made a few holding attacks in the north, the 15th and 21st Panzers supported by the 90th Light Division pushed through our southern minefields. The armour was through by 9 o'clock in the morning and then, harassed only by light mobile forces on the ground, it came forward quickly as far as the Ragil Depression. The panzers paused there, obviously expecting that our armour would counter-attack. There was no counter-attack. The panzers pushed on to the south-west of Alam el Bueib, where they met the main defences of our guns. By last light they had retired, badly damaged, to the Ragil Depression. That briefly was the ground situation on the first day. It should be remembered that the place-names denote nothing but ridges or tracks, and that the whole battle was fought across a bare, dry, hot desert, unrelieved by any vegetation higher than a clump of camelthorn.

The sudden change at the airfields was striking. The new books were pitched aside, the meals swallowed in haste. Every aircraft of this strengthened force was flying. The full weight of our air power was turned upon the enemy columns.

From the first moment that the panzers moved during the night of August 30th/31st they were bombed. Many of the Wellingtons which attacked them that night flew double sorties; that is, returning after the first attack, they were bombed-up again and refuelled in the darkness for the same crews to take off on a second raid. By dawn there were already 30 fires burning in

Rommel's bid for Egypt was known to be coming soon. Co-operation between the R.A.F. and the Army was now keyed to attack at once any grouping by his armour. A forward observation post watches.

the desert and already the first Baltimore raid, fighter-escorted, was over the Afrika Korps. Before the Baltimores had landed the Bostons were there. Freed from any considerable ground engagement until late afternoon, the Germans could turn all their guns upwards, so that it was through the heaviest barrage of A.A. fire that the bombers had to make their runs.

After the first few raids we met bad luck. A great sandstorm blotted out our airfields, while those of the Luftwaffe were clear. Fortunately some of the fighter squadrons had been moved to other airfields that were free from dust, so that fighter sweeps could be flown over the battle all day long. This was as well, for the Luftwaffe was extended to its limit in support of the attack. There was one formation of 40 Stukas escorted by 50 Me.109s which our fighters intercepted while it was still over its own troops. The Stukas jettisoned their bombs, some on the German columns, and fled in steep dives to the ground. Even so, three of them were shot down.

Throughout the day we lost not a single fighter pilot. In the evening, just as the panzers were retiring towards Ragil from the British guns, the dust on the airfields lifted sufficiently for several more light-bomber raids to be directed at them. Light bombers and fighters of the United States Army Air Forces, which had moved up in small numbers into the desert, took part

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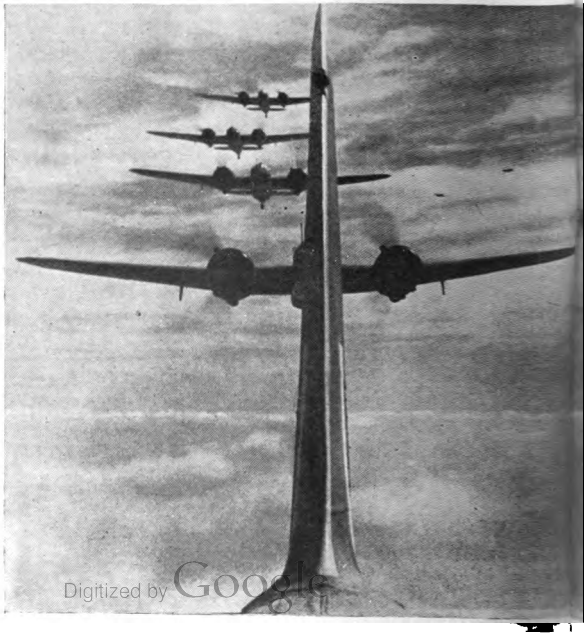
The German armour moves. The observation officer has seen two or three hundred enemy vehicles moving on the distant ridge. There is a sudden change at the airfields.

Telephones ring, briefing tents are crowded, air crews bundle into the waiting trucks and race to their machines. Bombers, with fighter escort, make for the signalled target.

The bombs go down upon the ridge, destroying some of the enemy vehicles, dispersing the rest. Grouping for attack must start again.

In the days to come, operations like this took place many times. Months of practice and experience in working together were about to bring their reward.



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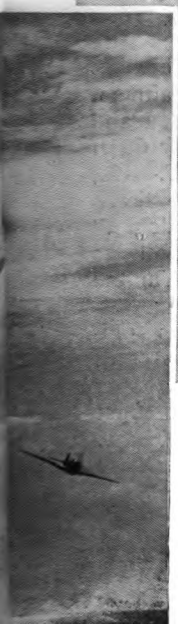

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in these raids. The Germans looking upwards saw not only the roundel of Britain but also the star of America.

Directly darkness fell, the Wellingtons were over the Ragil positions into which the German columns had retired. As one of the light-bomber commanders put it, we gave them two bomb-free periods every 24 hours—half an hour for their breakfast just before dawn, and half an hour for their supper just after dusk. For the remaining 23 hours they were bombed without respite.

Weary from lack of sleep, but committed now to their assault, the German columns came north from Ragil the following morning and fighting went on most of the day. So did the bombing. The squadrons were still hindered by dust storms, but in spite of them they put over seven escorted light-bomber raids by midday, Baltimores and Bostons taking it in turn, with the reinforcement of the American Mitchells, medium bombers. It was evident that Rommel realised his peril by then, faced by a wall of artillery on the ground, under a ceiling of bombs. He called on his own air force to protect him at least from the bombs, and the Luftwaffe came in force. Those first seven raids were costly to our squadrons. None of the enemy fighters succeeded in getting through our fighter screens to shoot down a bomber, but we lost three bombers to A.A. fire, while in one dogfight around a bombing formation six fighters were shot down for only one of theirs.

The day, however, was not ended. In the afternoon Kittyhawk pilots saw approaching them what one described as "a thick black wall coming through the air over the desert." It was a formation of 40 Stukas and more than 50 Me.109s. The Kittyhawks dived on them. The fight was over in two minutes, though "with never a dull second." The whole formation was routed before it could drop its bombs—four Stukas and two Messerschmitts were shot down; three more were probably destroyed and several damaged. Two fell to the guns of Squadron Leader Billy Drake, D.S.O., D.F.C., one of the top-scoring pilots of the desert. We had no losses. In the evening some Hurricanes met 15 Ju.88s, forced them to jettison their bombs and destroyed three of them, again for no loss. In other scattered engagements during the day, four more Messerschmitts were shot down. The balance lay with us in air combat, to say nothing of the bomb damage that had been done.

Half an hour for supper and the Wellingtons took over, many of them again flying double sorties. One of the many fires they started was still blazing and exploding when the last aircraft left just before dawn. Half an hour for breakfast and it was the turn of the Bostons, Baltimores and Mitchells. On that day, September 2nd, the light-bombers created a record of flying 20 per cent. more sorties than they had ever flown before.

The Luftwaffe was still working hard and several big Stuka formations flew against our troops. There was this difference: the Stukas no longer dived. They no longer dared to risk that one manœuvre from which most of their terror qualities sprang, but which exposed them to particular vulnerability to fighters. Instead, they released their bombs flying straight and level at a height of several thousand feet. Since a Stuka has no method of aiming a bomb except to aim the aircraft in a dive at the target, straight and level bombing was of the wildest, doing scant damage. Yet even these half-hearted bombing attacks were not cheap. By nightfall the enemy had lost six Stukas, eight Messerschmitts and one Macchi, with as many more probably destroyed or damaged. Our losses were 10 fighters, but five of the pilots were already known to be safe.

Then all night long the Wellingtons bombed, again causing many fires. Since they were not using incendiary bombs, the Wellington pilots knew that every fire they saw below them was some enemy truck or dump which had been knocked out. Of two of the explosions there could be no doubt in any circumstances. One threw debris to a height of 5,000 feet, another rocked an aircraft 1,000 feet higher still.

Such night bombing was achieved only because of the magnificent work of the naval airmen, in their slow Albacores, who went ahead and dropped flares for the Wellingtons. Air Chief Marshal Tedder signalled to the C.-in-C., Mediterranean, asking that the naval squadrons should be congratulated. "There is no doubt," he wrote, "that these continuous night attacks were one of the decisive factors in crushing the enemy attack."

September 3rd compensated for its predecessors by being a day free from dust storms. The light bombers therefore outstripped their own record of the day before, and for the first time flew more than 200 sorties in a single day, with no losses, although their escorts had a hard

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time fighting off attacks from Messerschmitts and Macchis.

Something should be said here, as the pilots said at the time, of the contribution which the ground crews on the airfields made to this day of record light bombing. In the language of the Air Force, every man, from the Group Captain controlling operations to the A.C.2 cook, "had his finger well out." Let the cooks this time speak for everybody. The cooks on a desert airfield work with the most meagre equipment, often with the most monotonous food, in fly-plagued conditions of great heat.

On this day of record bombing the cooks of one squadron determined that not a single air crew should come back to the mess to a cold and scrappy meal. Not one did. At half-past five in the afternoon 72 weary airmen entered that mess after a series of raids and were at once served with a well-cooked hot lunch. Not a feat of war, perhaps, but it took some doing on a few old tin cans, a battered petrol burner choked with dust, and an oven built of sand cemented with water. The cooks saw nothing of the fight, but they had contributed to it.

During those early days of September a Wellington was forced to make a crash-landing well to the south of Tobruk. Its crew consisted of a pilot officer, a flight sergeant, and four sergeants, none of whom was injured in the landing. Since they appeared to have crashed near an enemy post, they spent the rest of the night zig-zagging far into the desert between themselves and home. It was to take them 29 days and all except one of them were to arrive home safely.

The first six days were spent in getting as far as the frontier wire. Here and there they had run across parties of Arabs watering their camels, and once the front gunner was lowered down an old well in the desert—a deep hole chipped with infinite patience by the wandering Arabs—to haul up water from the bottom. They found the remains of several old British camps, even found a can of bully-beef at one of them.

They had been over the border for only a couple of days when they managed to catch some camels, apparently unattended, upon which they loaded their kit. Soon afterwards the Arab camel driver came up and they had to surrender the camels. The Arab and his villagers sold them food and water but would not dare to act as guides for the journey east. There were too

The Luftwaffe put all its weight into the bid for Egypt, Rommel flung in his Stukas until our pilots saw "a thick black wall coming through the air."

The Stukas were forced to jettison their bombs in raid after raid. They scattered and fled—and one by one they flamed down and bit the dust of the desert.

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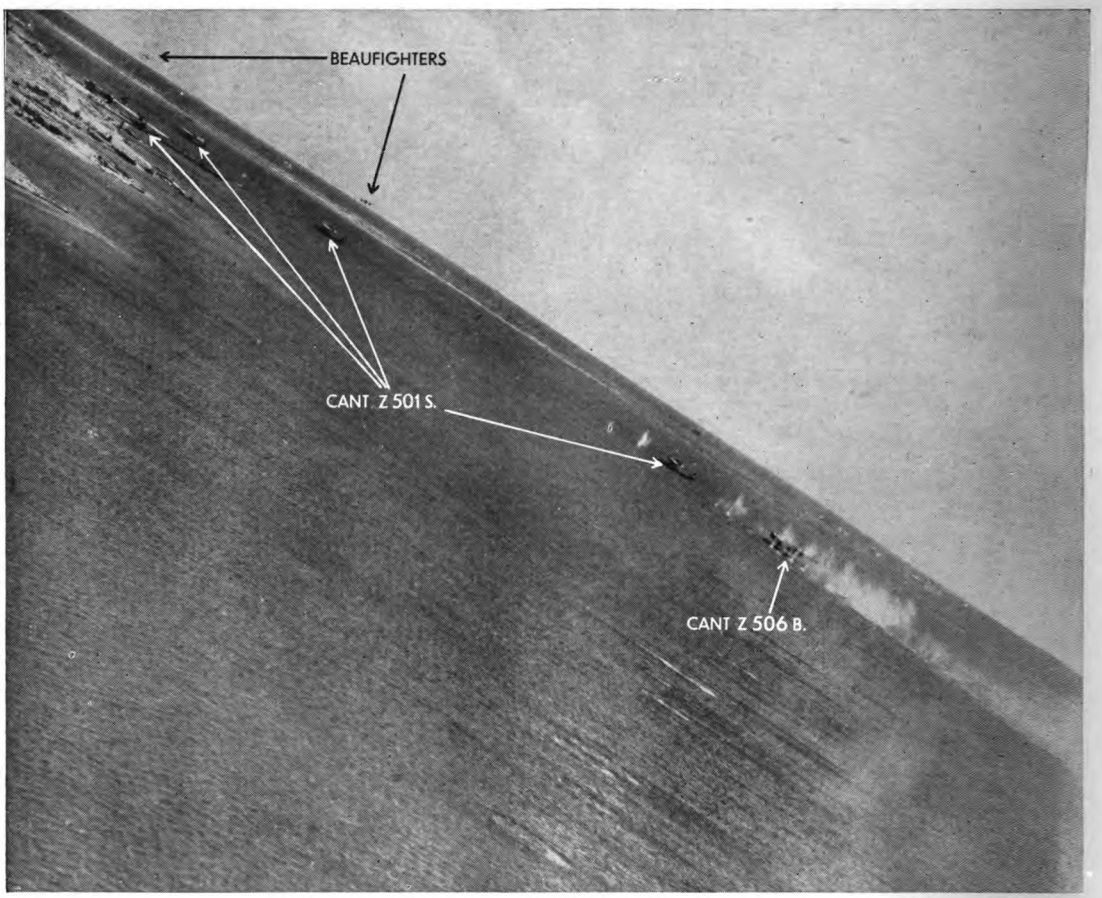

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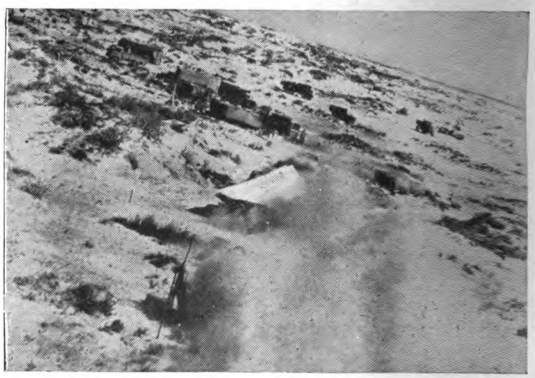

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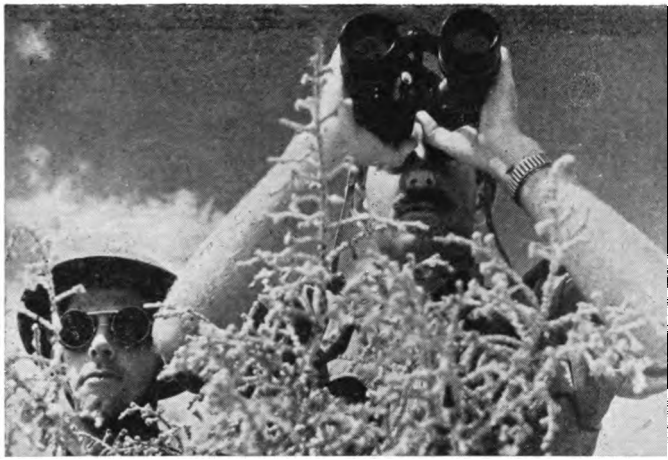
August. Apart from the heat and a plague of flies, the squadrons lived more comfortably than they had ever done. Water was good and plentiful; the recreations of Alexandria were to hand; and, with shops so near, such luxuries as fruit, roast chicken, even mint sauce appeared on trestle tables in the mess tents. Men came back from the city with new books still in their dust covers. The desert airmen gratefully absorbed a few civilised comforts for a change, knowing that the battle would soon begin; with one eye on the south of the line they sang new words to the old jingle, "Coming down the mountain"—"They'll be coming through Qattara when they come, when they come."

It was in fact in the south, though not in the Qattara Depression itself, that on the night of August 30th/31st Rommel launched his delayed attack with the full strength of the Afrika Korps. While the Italians made a few holding attacks in the north, the 15th and 21st Panzers supported by the 90th Light Division pushed through our southern minefields. The armour was through by 9 o'clock in the morning and then, harassed only by light mobile forces on the ground, it came forward quickly as far as the Ragil Depression. The panzers paused there, obviously expecting that our armour would counter-attack. There was no counter-attack. The panzers pushed on to the south-west of Alam el Bueib, where they met the main defences of our guns. By last light they had retired, badly damaged, to the Ragil Depression. That briefly was the ground situation on the first day. It should be remembered that the place-names denote nothing but ridges or tracks, and that the whole battle was fought across a bare, dry, hot desert, unrelieved by any vegetation higher than a clump of camelthorn.

The sudden change at the airfields was striking. The new books were pitched aside, the meals swallowed in haste. Every aircraft of this strengthened force was flying. The full weight of our air power was turned upon the enemy columns.

From the first moment that the panzers moved during the night of August 30th/31st they were bombed. Many of the Wellingtons which attacked them that night flew double sorties; that is, returning after the first attack, they were bombed-up again and refuelled in the darkness for the same crews to take off on a second raid. By dawn there were already 30 fires burning in the desert and already the first Baltimore raid, fighter-escorted, was over the Afrika Korps. Before the Baltimores had landed the Bostons were there. Freed from any considerable ground engagement until late afternoon, the Germans could turn all their guns upwards, so that it was through the heaviest barrage of A.A. fire that the bombers had to make their runs.



Rommel's bid for Egypt was known to be coming soon. Co-operation between the R.A.F. and the Army was now keyed to attack at once any grouping by his armour. A forward observation post watches.

After the first few raids we met bad luck. A great sandstorm blotted out our airfields, while those of the Luftwaffe were clear. Fortunately some of the fighter squadrons had been moved to other airfields that were free from dust, so that fighter sweeps could be flown over the battle all day long. This was as well, for the Luftwaffe was extended to its limit in support of the attack. There was one formation of 40 Stukas escorted by 50 Me.109s which our fighters intercepted while it was still over its own troops. The Stukas jettisoned their bombs, some on the German columns, and fled in steep dives to the ground. Even so, three of them were shot down.

Throughout the day we lost not a single fighter pilot. In the evening, just as the panzers were retiring towards Ragil from the British guns, the dust on the airfields lifted sufficiently for several more light-bomber raids to be directed at them. Light bombers and fighters of the United States Army Air Forces, which had moved up in small numbers into the desert, took part

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The German armour moves. The observation officer has seen two or three hundred enemy vehicles moving on the distant ridge. There is a sudden change at the airfields.

Telephones ring, briefing tents are crowded, air crews bundle into the waiting trucks and race to their machines. Bombers, with fighter escort, make for the signalled target.

The bombs go down upon the ridge, destroying some of the enemy vehicles, dispersing the rest. Grouping for attack must start again.

In the days to come, operations like this took place many times. Months of practice and experience in working together were about to bring their reward.

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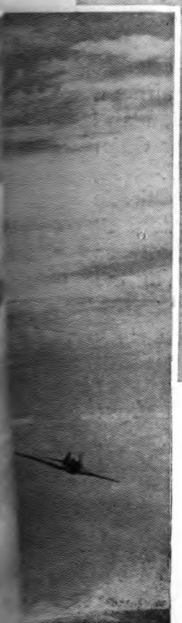

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in these raids. The Germans looking upwards saw not only the roundel of Britain but also the star of America.

Directly darkness fell, the Wellingtons were over the Ragil positions into which the German columns had retired. As one of the light-bomber commanders put it, we gave them two bomb-free periods every 24 hours—half an hour for their breakfast just before dawn, and half an hour for their supper just after dusk. For the remaining 23 hours they were bombed without respite.

Weary from lack of sleep, but committed now to their assault, the German columns came north from Ragil the following morning and fighting went on most of the day. So did the bombing. The squadrons were still hindered by dust storms, but in spite of them they put over seven escorted light-bomber raids by midday, Baltimores and Bostons taking it in turn, with the reinforcement of the American Mitchells, medium bombers. It was evident that Rommel realised his peril by then, faced by a wall of artillery on the ground, under a ceiling of bombs. He called on his own air force to protect him at least from the bombs, and the Luftwaffe came in force. Those first seven raids were costly to our squadrons. None of the enemy fighters succeeded in getting through our fighter screens to shoot down a bomber, but we lost three bombers to A.A. fire, while in one dogfight around a bombing formation six fighters were shot down for only one of theirs.

The day, however, was not ended. In the afternoon Kittyhawk pilots saw approaching them what one described as "a thick black wall coming through the air over the desert." It was a formation of 40 Stukas and more than 50 Me.109s. The Kittyhawks dived on them. The fight was over in two minutes, though "with never a dull second." The whole formation was routed before it could drop its bombs—four Stukas and two Messerschmitts were shot down; three more were probably destroyed and several damaged. Two fell to the guns of Squadron Leader Billy Drake, D.S.O., D.F.C., one of the top-scoring pilots of the desert. We had no losses. In the evening some Hurricanes met 15 Ju.88s, forced them to jettison their bombs and destroyed three of them, again for no loss. In other scattered engagements during the day, four more Messerschmitts were shot down. The balance lay with us in air combat, to say nothing of the bomb damage that had been done.

Half an hour for supper and the Wellingtons took over, many of them again flying double sorties. One of the many fires they started was still blazing and exploding when the last aircraft left just before dawn. Half an hour for breakfast and it was the turn of the Bostons, Baltimores and Mitchells. On that day, September 2nd, the light-bombers created a record of flying 20 per cent. more sorties than they had ever flown before.

The Luftwaffe was still working hard and several big Stuka formations flew against our troops. There was this difference: the Stukas no longer dived. They no longer dared to risk that one manœuvre from which most of their terror qualities sprang, but which exposed them to particular vulnerability to fighters. Instead, they released their bombs flying straight and level at a height of several thousand feet. Since a Stuka has no method of aiming a bomb except to aim the aircraft in a dive at the target, straight and level bombing was of the wildest, doing scant damage. Yet even these half-hearted bombing attacks were not cheap. By nightfall the enemy had lost six Stukas, eight Messerschmitts and one Macchi, with as many more probably destroyed or damaged. Our losses were 10 fighters, but five of the pilots were already known to be safe.

Then all night long the Wellingtons bombed, again causing many fires. Since they were not using incendiary bombs, the Wellington pilots knew that every fire they saw below them was some enemy truck or dump which had been knocked out. Of two of the explosions there could be no doubt in any circumstances. One threw debris to a height of 5,000 feet, another rocked an aircraft 1,000 feet higher still.

Such night bombing was achieved only because of the magnificent work of the naval airmen, in their slow Albacores, who went ahead and dropped flares for the Wellingtons. Air Chief Marshal Tedder signalled to the C.-in-C., Mediterranean, asking that the naval squadrons should be congratulated. "There is no doubt," he wrote, "that these continuous night attacks were one of the decisive factors in crushing the enemy attack."

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Something should be said here, as the pilots said at the time, of the contribution which the ground crews on the airfields made to this day of record light bombing. In the language of the Air Force, every man, from the Group Captain controlling operations to the A.C.2 cook, "had his finger well out." Let the cooks this time speak for everybody. The cooks on a desert airfield work with the most meagre equipment, often with the most monotonous food, in fly-plagued conditions of great heat.

On this day of record bombing the cooks of one squadron determined that not a single air crew should come back to the mess to a cold and scrappy meal. Not one did. At half-past five in the afternoon 72 weary airmen entered that mess after a series of raids and were at once served with a well-cooked hot lunch. Not a feat of war, perhaps, but it took some doing on a few old tin cans, a battered petrol burner choked with dust, and an oven built of sand cemented with water. The cooks saw nothing of the fight, but they had contributed to it.

During those early days of September a Wellington was forced to make a crash-landing well to the south of Tobruk. Its crew consisted of a pilot officer, a flight sergeant, and four sergeants, none of whom was injured in the landing. Since they appeared to have crashed near an enemy post, they spent the rest of the night zig-zagging far into the desert between themselves and home. It was to take them 29 days and all except one of them were to arrive home safely.

The first six days were spent in getting as far as the frontier wire. Here and there they had run across parties of Arabs watering their camels, and once the front gunner was lowered down an old well in the desert—a deep hole chipped with infinite patience by the wandering Arabs—to haul up water from the bottom. They found the remains of several old British camps, even found a can of bully-beef at one of them.

They had been over the border for only a couple of days when they managed to catch some camels, apparently unattended, upon which they loaded their kit. Soon afterwards the Arab camel driver came up and they had to surrender the camels. The Arab and his villagers sold them food and water but would not dare to act as guides for the journey east. There were too

The Luftwaffe put all its weight into the bid for Egypt, Rommel flung in his Stukas until our pilots saw "a thick black wall coming through the air."

The Stukas were forced to jettison their bombs in raid after raid. They scattered and fled—and one by one they flamed down and bit the dust of the desert.

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many of the enemy about. By the fourteenth day their luck was beginning to fail. Several wells to which they had navigated themselves had proved dry. The rear gunner was suffering from sore and painful feet, which were beginning to become infected, and for his sake the whole party turned farther to the north, nearer the coast road and the camps.

The pilot officer in command of the party then decided on a desperate gamble—to try to capture a lorry from the enemy convoys that were passing back and forth continually in the north. He spent the fifteenth day lying hidden on a small sandhill, watching the traffic going by on the coast road, while the rest of the party waited at a well. That night, directly the moon was up, they moved forward, following the tracks of motor trucks in the sand. They saw two lorries standing about 50 yards from each other and decided to make an attempt for one of them. Two men stayed behind with the kit, the other four crept up towards the nearest lorry. The rear gunner was given the leading part to play since he had considerable experience of guerrilla warfare in Spain and in Finland.

They pounced on the truck, knocking the driver over the head with a revolver butt. Unfortunately both lorries were full of sleeping troops, who at once jumped to their guns and started firing. The second pilot, who was hatless, had got right inside the lorry; for a while the enemy troops mistook him for one of themselves. It was clear that against such odds the truck could not be captured, so the pilot officer drew his party away, firing as they went. The only man who did not succeed in escaping was the rear gunner. The other five dispersed in the darkness and had come together again by dawn. They struck out again for the south-east to get away from inhabited places.

The remainder of their journey was a careful trek from well to well across the desert. They had with them the maps from their aircraft, by which the navigator steered them cleverly. Now and then they met wandering Arabs or small tent villages at which they purchased a little food and water. Once they had to break suddenly to the south to avoid an enemy airfield. They finished the journey through the salt marshes and rough going of the Qattara Depression, heading to the east for Lake Maghra. On the 29th day, still reasonably fresh and in good humour, this party of five men contacted a British tank unit

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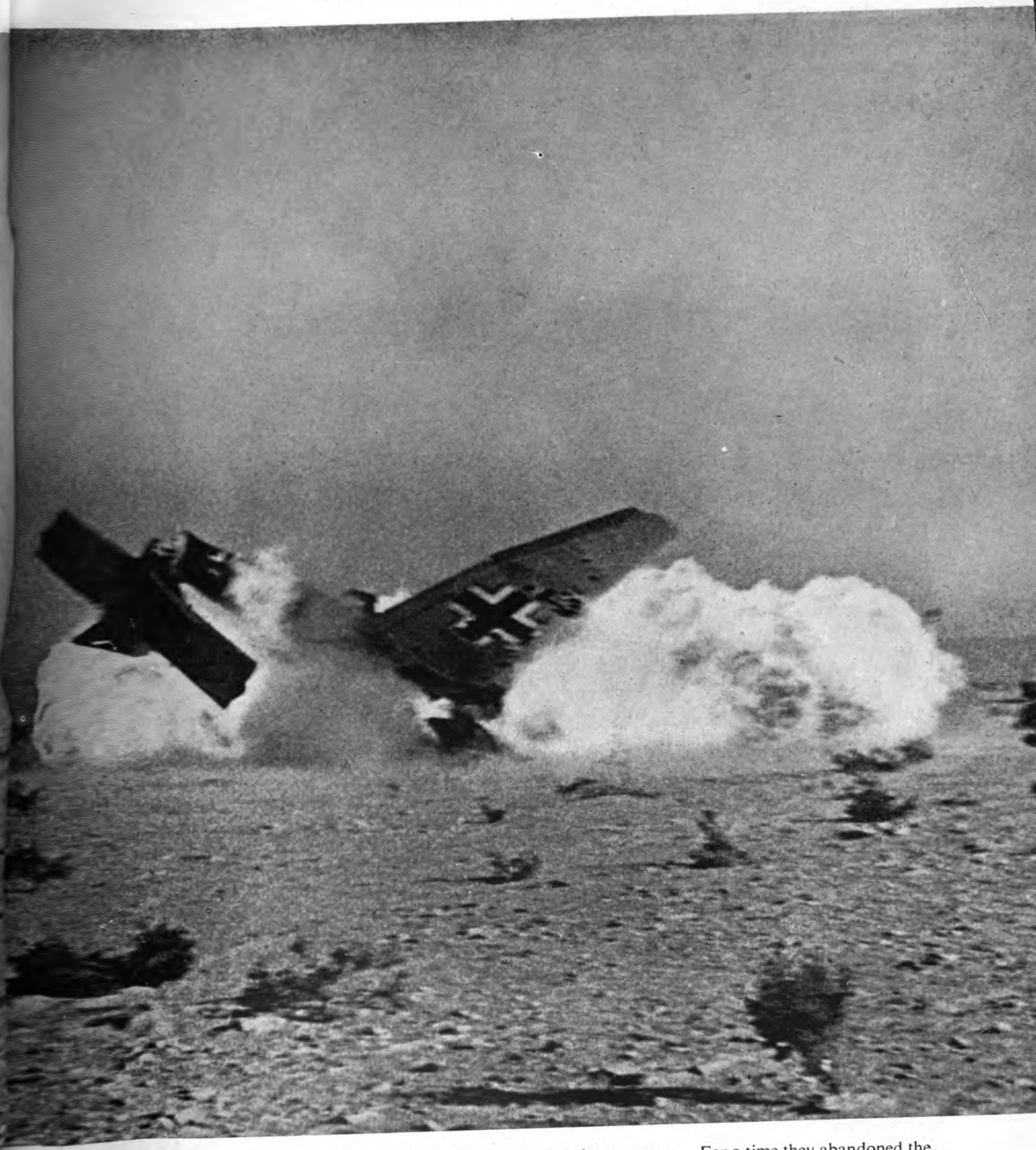

It was the end of the Stuka as a fighting weapon. For a time they abandoned the manœuvre for which they were designed; they no longer dived. But from several thousand feet they had no method of aiming—and the R.A.F. still shot them out of the sky.

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and was brought back to our own lines. With courage and determination, and by keeping their heads, they had beaten the desert and penetrated 350 miles of enemy territory. It is never too late to come back.

While the Wellingtons were again over the battlefield from dusk till dawn, during the night of September 3rd/4th another striking force was at work over the Mediterranean. Desperate attempts were being made by the enemy to run in some supplies that might still turn the issue. So one force of Wellingtons returned to bomb Tobruk, while another of torpedo Wellingtons and Liberators sought out a convoy which had been steaming southwards from Crete. They found it about 40 miles off Tobruk. A Wellington made the first attack, launching two torpedoes at a merchant ship of some 5,000 tons. The navigator and the rear gunner both saw a large explosion; and when the pilot circled to investigate, he saw to his astonishment that the ship had been split into two halves, both of which were blazing furiously.

There were two other merchant ships in the convoy. One was sunk by one of our own naval vessels which was guided to her by a Wellington. The other was sunk by torpedoes from a third Wellington. When next morning a striking-force of Hudsons was sent to finish off the convoy, they found only two ships, ablaze and sinking, and three hospital ships standing by. So they used their bombs on one of the destroyers in a low-level attack and probably sank her.

The destruction of that convoy, coupled with

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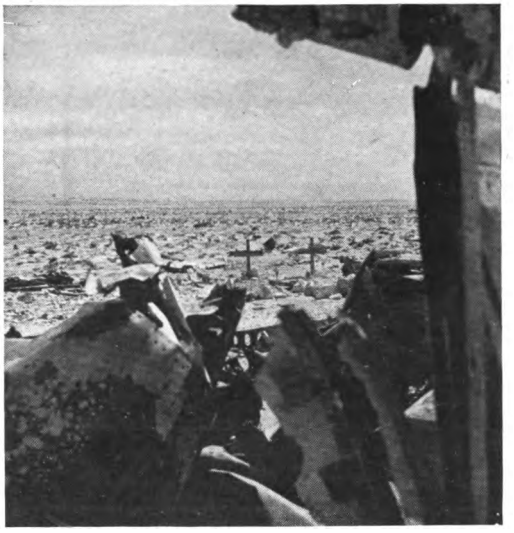
the assault on the field of battle, finished the thing. Next day, September 4th, the light bombers were attacking an enemy force that was retreating to the west behind a screen of tanks and guns. The comparatively small piece of desert over which the battle had been fought was littered with tangled and burnt vehicles. The Axis radio declared stoutly that the whole thing had been nothing but a minor reconnaissance in force. But our Army discovered on the battlefield some 40 German and some dozen Italian tanks which were so badly battered that the enemy had left them, although he dragged away all that he could.

By September 5th the battle was over. Except for a bridgehead across our southern minefields, the Afrika Korps had thrown in all its strength only to be driven back, badly hit, to the positions it held on August 29th. The Luftwaffe, which had often put up formations of 100 aircraft at the same time to support the German troops, had lost 55 for certain, probably many more. This was Rommel's throw to beat the 8th Army and capture Egypt. It failed fundamentally because of the interruption by the air force of supply lines before the battle began, and because of the effect on morale of incessant bombing during its progress.

The damage done to the Afrika Korps on the battlefield itself can fairly be shared between the artillery of the 8th Army and the bombers. Each appreciated in a friendly rivalry how much the other had done. It should be remembered that this is an account of only the air side of the battle. The way in which the two arms both struck at the enemy is illustrated by a story which the gunners told with rueful good humour. A German column presented some of their batteries with a perfect target, the gunners' dream. Ranges were adjusted, sights trained. On the point of firing, the battery commander, seeing a bomber formation approaching, paused to allow it to bomb. When the smoke and the dust cleared the ideal target was a tangle of torn and burning trucks, only debris remained of the gunners' dream.

Blazing, twisted wreckage and the graves of German airmen marked the defeat of the Luftwaffe before Alamein; 55 aircraft were destroyed for certain in six days. For German air power in Africa it was the beginning of the end



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10—"They flew everywhere, stinging like hornets"

THE GERMANS HAD stirred the desert, and wished now only for another lull in which they might strive to rebuild their forces. But the Allied air force had finished with lulls. The hand that controlled the machine was pressing all the buttons, every cogwheel was gathering speed. The airmen knew that the next attack would come from their side, would come soon, and that their first task would be to weaken the enemy at every point, their second to open the battle.

The night bombers returned relentlessly to the target of Tobruk. The greatest attack was on the night of September 13th/14th, when a combined operation was carried out against the town. While naval and military units were making a landing, the bombers, in greater strength than ever before, plastered the town with bombs up to a weight of 4,000 lb. each throughout the night. Fires that sprang up around the docks and the fuel storage tanks spread into conflagrations. The pilot of a heavy bomber returning from a simultaneous raid on Benghazi reported that when he passed Tobruk there was one fuel tank "glowing and pulsating like a big red orchid." At the start of the raid and for the first hour, the whole Tobruk A.A. barrage was firing furiously. When the last bomber turned east there were only three guns still firing, wildly and intermittently.

On September 16th came the first of three raids on Benghazi which, even in the long history of raids on that city, were outstanding. During the morning a large number of Liberator bombers of the U.S.A.A.F. and R.A.F. took off from near Cairo and flew in close formation to bomb Benghazi. They had to dispense with fighter protection for 1,200 miles, for the four-engine bombers were the only aircraft with anything like sufficient range to reach the target.

At midday, still flying in perfect formation, the Liberators sailed out of the sun across Benghazi harbour where a number of sizable ships were off-loading on to the converted wrecks, George, Harry and Johnny. The Liberators pattern-bombed. All, that is, released their bombs at the same moment; many bombs, of heavy weight. The watching air-crews saw sharp white flashes on the decks of several of the ships. Clouds of white steam curled up in the sunshine, thickening rapidly into oily rolls of black smoke. Behind the tails of the returning bombers there were three such columns of smoke, one of which suddenly exploded with great force, flinging debris high above the harbour. All the Liberators returned safely.

The raid was repeated near dusk on September 22nd, and again in darkness six hours later. After the dusk raid the rear gunners, gazing into the sunset over the sea, saw a more vivid flash of orange against the sky as a ship blew up violently. The night bombers guided themselves to the target from a distance of 80 miles by the glow of a burning merchant vessel.

Even the official report on the photographs taken during these three raids describes the damage as "spectacular." During the first a supply ship of 6,500 tons which was off-loading on to George was hit and set on fire. She had to be towed towards the outer mole where she burnt herself out. The second raid—that carried out against the sunset—completely disposed of those obstinate targets Harry and Johnny, wrecks, it will be remembered, which had been concreted in and had become the main unloading jetties of battered Benghazi harbour. When the bombers arrived, a merchant ship lay alongside Harry. She must have been unloading either petrol or ammunition, for when she was hit she blew up and disintegrated into tangled wreckage with her battered stern flung right up on top of the mole.

The force of that explosion broke Harry, concrete and all, from the Cathedral mole and sank her stern. It overturned Johnny on to her port side, leaving only the starboard rail awash; it sank two other smaller merchant ships; it sank a smaller concreted wreck named Ink; it burned out yet another merchant ship which lay on the far side of the Cathedral mole; and it picked up a large iron barge and poised it several feet above the water on top of another wreck. The third

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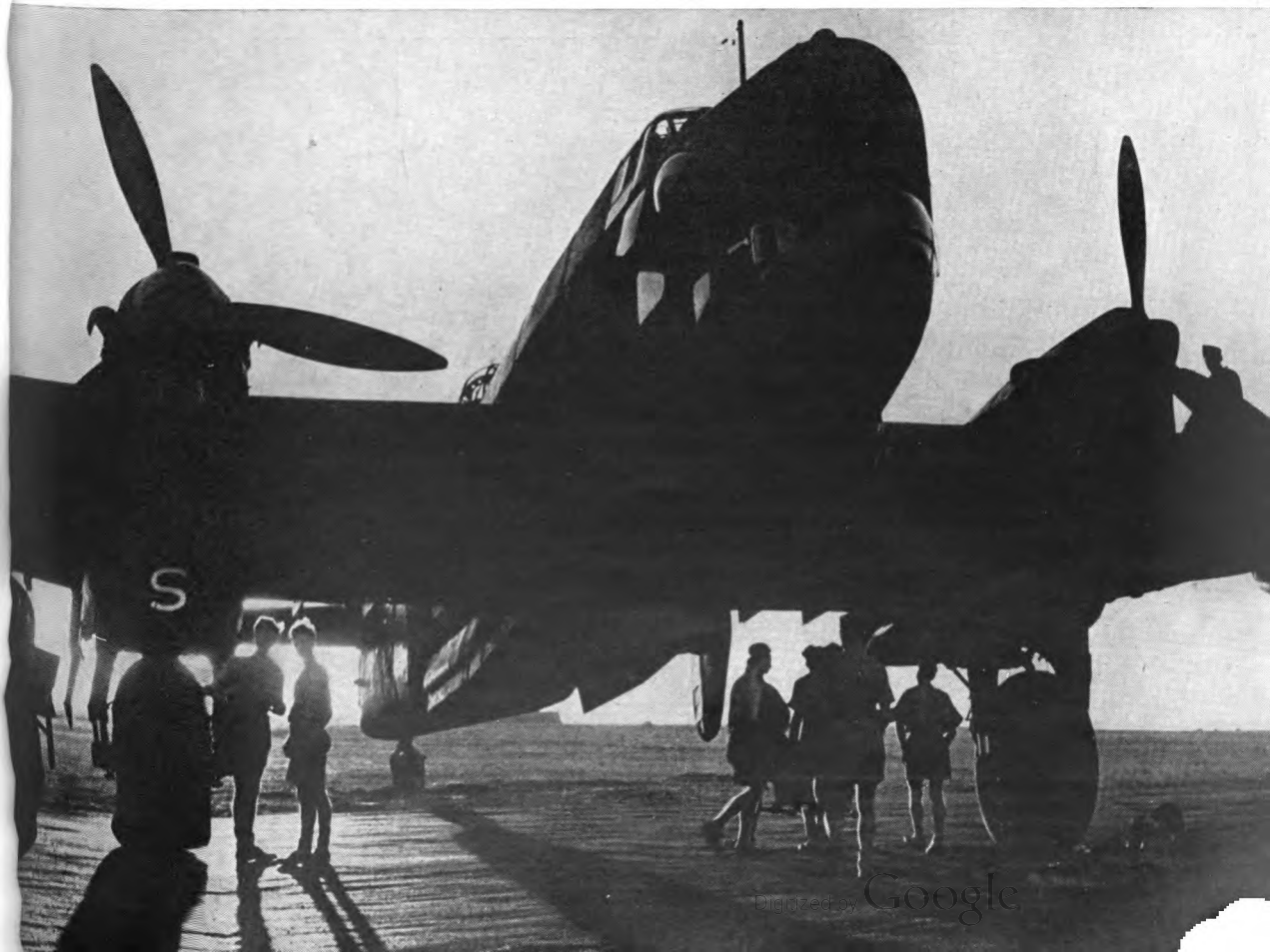
raid, at night, completed the destruction of all this valuable shipping and off-loading space. It is probably an under-estimate to say that those three raids, besides destroying so much valuable material and shipping, halved the value of Benghazi as the back door to Cyrenaica for the supplies the enemy needed so urgently after the disastrous failure of his September attack.

The bombing of ports was only part of the air power that was now gradually exerted. Over the Mediterranean the night sky was lit more and more frequently with the flames of burning tankers and supply ships. The air force over the sea was turning on the power. Every day the Marylands searched for enemy ships, every night when they had been sighted the Wellingtons carried their torpedoes against them, while at dawn the Hudsons took bombs to finish them off.

Not all the ships that ran to Tobruk or Benghazi were hit. Some got through. Of those, some were knocked out in the harbours, but even so part of their cargo was unloaded and sent on the journey to the front. And there the Beaufighters and the Bisleys struck at it, day after day, whether it travelled by coastal barge, by truck or by train. The Germans had by that time put the desert railway into use again, bringing over from Europe some diesel engines to haul the captured trucks. The trains had no more luck than the barges and the lorries. One was discovered by a reconnaissance aircraft to be heading east with a haul of some 26 trucks, some of them flat and carrying heavy artillery, the others covered and doubtless containing

The mail run to Benghazi was now possible only to the heavy four-engined bombers based near Cairo. It did not stop. Halifaxes bombed by night, U.S. Liberators by day. Ground-crews prepare a Halifax as the sun goes down.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Weary from lack of sleep, but committed now to their assault, the German columns came north from Ragil the following morning and fighting went on most of the day. So did the bombing. The squadrons were still hindered by dust storms, but in spite of them they put over seven escorted light-bomber raids by midday, Baltimores and Bostons taking it in turn, with the reinforcement of the American Mitchells, medium bombers. It was evident that Rommel realised his peril by then, faced by a wall of artillery on the ground, under a ceiling of bombs. He called on his own air force to protect him at least from the bombs, and the Luftwaffe came in force. Those first seven raids were costly to our squadrons. None of the enemy fighters succeeded in getting through our fighter screens to shoot down a bomber, but we lost three bombers to A.A. fire, while in one dogfight around a bombing formation six fighters were shot down for only one of theirs.

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many of the enemy about. By the fourteenth day their luck was beginning to fail. Several wells to which they had navigated themselves had proved dry. The rear gunner was suffering from sore and painful feet, which were beginning to become infected, and for his sake the whole party turned farther to the north, nearer the coast road and the camps.

The pilot officer in command of the party then decided on a desperate gamble—to try to capture a lorry from the enemy convoys that were passing back and forth continually in the north. He spent the fifteenth day lying hidden on a small sandhill, watching the traffic going by on the coast road, while the rest of the party waited at a well. That night, directly the moon was up, they moved forward, following the tracks of motor trucks in the sand. They saw two lorries standing about 50 yards from each other and decided to make an attempt for one of them. Two men stayed behind with the kit, the other four crept up towards the nearest lorry. The rear gunner was given the leading part to play since he had considerable experience of guerrilla warfare in Spain and in Finland.

They pounced on the truck, knocking the driver over the head with a revolver butt. Unfortunately both lorries were full of sleeping troops, who at once jumped to their guns and started firing. The second pilot, who was hatless, had got right inside the lorry; for a while the enemy troops mistook him for one of themselves. It was clear that against such odds the truck could not be captured, so the pilot officer drew his party away, firing as they went. The only man who did not succeed in escaping was the rear gunner. The other five dispersed in the darkness and had come together again by dawn. They struck out again for the south-east to get away from inhabited places.

The remainder of their journey was a careful trek from well to well across the desert. They had with them the maps from their aircraft, by which the navigator steered them cleverly. Now and then they met wandering Arabs or small tent villages at which they purchased a little food and water. Once they had to break suddenly to the south to avoid an enemy airfield. They finished the journey through the salt marshes and rough going of the Qattara Depression, heading to the east for Lake Maghra. On the 29th day, still reasonably fresh and in good humour, this party of five men contacted a British tank unit

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It was the end of the Stuka as a fighting weapon. For a time they abandoned the manœuvre for which they were designed; they no longer dived. But from several thousand feet they had no method of aiming—and the R.A.F. still shot them out of the sky.

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and was brought back to our own lines. With courage and determination, and by keeping their heads, they had beaten the desert and penetrated 350 miles of enemy territory. It is never too late to come back.

While the Wellingtons were again over the battlefield from dusk till dawn, during the night of September 3rd-4th another striking force was at work over the Mediterranean. Desperate attempts were being made by the enemy to run in some supplies that might still turn the issue. So one force of Wellingtons returned to bomb Tobruk, while another of torpedo Wellingtons and Liberators sought out a convoy which had been steaming southwards from Crete. They found it about 40 miles off Tobruk. A Wellington made the first attack, launching two torpedoes at a merchant ship of some 5,000 tons. The navigator and the rear gunner both saw a large explosion; and when the pilot circled to investigate, he saw to his astonishment that the ship had been split into two halves, both of which were blazing furiously.

There were two other merchant ships in the convoy. One was sunk by one of our own naval vessels which was guided to her by a Wellington. The other was sunk by torpedoes from a third Wellington. When next morning a striking-force of Hudsons was sent to finish off the convoy, they found only two ships, ablaze and sinking, and three hospital ships standing by. So they used their bombs on one of the destroyers in a low-level attack and probably sank her.

The destruction of that convoy, coupled with

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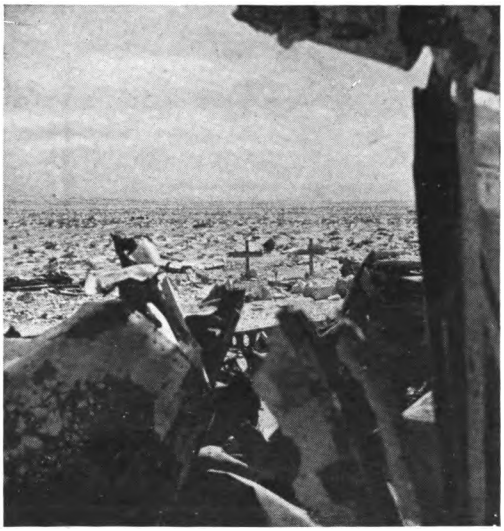
the assault on the field of battle, finished the thing. Next day, September 4th, the light bombers were attacking an enemy force that was retreating to the west behind a screen of tanks and guns. The comparatively small piece of desert over which the battle had been fought was littered with tangled and burnt vehicles. The Axis radio declared stoutly that the whole thing had been nothing but a minor reconnaissance in force. But our Army discovered on the battlefield some 40 German and some dozen Italian tanks which were so badly battered that the enemy had left them, although he dragged away all that he could.

By September 5th the battle was over. Except for a bridgehead across our southern minefields, the Afrika Korps had thrown in all its strength only to be driven back, badly hit, to the positions it held on August 29th. The Luftwaffe, which had often put up formations of 100 aircraft at the same time to support the German troops, had lost 55 for certain, probably many more. This was Rommel's throw to beat the 8th Army and capture Egypt. It failed fundamentally because of the interruption by the air force of supply lines before the battle began, and because of the effect on morale of incessant bombing during its progress.

The damage done to the Afrika Korps on the battlefield itself can fairly be shared between the artillery of the 8th Army and the bombers. Each appreciated in a friendly rivalry how much the other had done. It should be remembered that this is an account of only the air side of the battle. The way in which the two arms both struck at the enemy is illustrated by a story which the gunners told with rueful good humour. A German column presented some of their batteries with a perfect target, the gunners' dream. Ranges were adjusted, sights trained. On the point of firing, the battery commander, seeing a bomber formation approaching, paused to allow it to bomb. When the smoke and the dust cleared the ideal target was a tangle of torn and burning trucks, only debris remained of the gunners' dream.

Blazing, twisted wreckage and the graves of German airmen marked the defeat of the Luftwaffe before Alamein; 55 aircraft were destroyed for certain in six days. For German air power in Africa it was the beginning of the end



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10—"They flew everywhere, stinging like hornets"

THE GERMANS HAD stirred the desert, and wished now only for another lull in which they might strive to rebuild their forces. But the Allied air force had finished with lulls. The hand that controlled the machine was pressing all the buttons, every cogwheel was gathering speed. The airmen knew that the next attack would come from their side, would come soon, and that their first task would be to weaken the enemy at every point, their second to open the battle.

The night bombers returned relentlessly to the target of Tobruk. The greatest attack was on the night of September 13th/14th, when a combined operation was carried out against the town. While naval and military units were making a landing, the bombers, in greater strength than ever before, plastered the town with bombs up to a weight of 4,000 lb. each throughout the night. Fires that sprang up around the docks and the fuel storage tanks spread into conflagrations. The pilot of a heavy bomber returning from a simultaneous raid on Benghazi reported that when he passed Tobruk there was one fuel tank "glowing and pulsating like a big red orchid." At the start of the raid and for the first hour, the whole Tobruk A.A. barrage was firing furiously. When the last bomber turned east there were only three guns still firing, wildly and intermittently.

On September 16th came the first of three raids on Benghazi which, even in the long history of raids on that city, were outstanding. During the morning a large number of Liberator bombers of the U.S.A.A.F. and R.A.F. took off from near Cairo and flew in close formation to bomb Benghazi. They had to dispense with fighter protection for 1,200 miles, for the four-engine bombers were the only aircraft with anything like sufficient range to reach the target.

At midday, still flying in perfect formation, the Liberators sailed out of the sun across Benghazi harbour where a number of sizable ships were off-loading on to the converted wrecks, George, Harry and Johnny. The Liberators pattern-bombed. All, that is, released their bombs at the same moment; many bombs, of heavy weight. The watching air-crews saw sharp white flashes on the decks of several of the ships. Clouds of white steam curled up in the sunshine, thickening rapidly into oily rolls of black smoke. Behind the tails of the returning bombers there were three such columns of smoke, one of which suddenly exploded with great force, flinging debris high above the harbour. All the Liberators returned safely.

The raid was repeated near dusk on September 22nd, and again in darkness six hours later. After the dusk raid the rear gunners, gazing into the sunset over the sea, saw a more vivid flash of orange against the sky as a ship blew up violently. The night bombers guided themselves to the target from a distance of 80 miles by the glow of a burning merchant vessel.

Even the official report on the photographs taken during these three raids describes the damage as "spectacular." During the first a supply ship of 6,500 tons which was off-loading on to George was hit and set on fire. She had to be towed towards the outer mole where she burnt herself out. The second raid—that carried out against the sunset—completely disposed of those obstinate targets Harry and Johnny, wrecks, it will be remembered, which had been concreted in and had become the main unloading jetties of battered Benghazi harbour. When the bombers arrived, a merchant ship lay alongside Harry. She must have been unloading either petrol or ammunition, for when she was hit she blew up and disintegrated into tangled wreckage with her battered stern flung right up on top of the mole.

The force of that explosion broke Harry, concrete and all, from the Cathedral mole and sank her stern. It overturned Johnny on to her port side, leaving only the starboard rail awash; it sank two other smaller merchant ships; it sank a smaller concreted wreck named Ink; it burned out yet another merchant ship which lay on the far side of the Cathedral mole; and it picked up a large iron barge and poised it several feet above the water on top of another wreck. The third

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raid, at night, completed the destruction of all this valuable shipping and off-loading space. It is probably an under-estimate to say that those three raids, besides destroying so much valuable material and shipping, halved the value of Benghazi as the back door to Cyrenaica for the supplies the enemy needed so urgently after the disastrous failure of his September attack.

The bombing of ports was only part of the air power that was now gradually exerted. Over the Mediterranean the night sky was lit more and more frequently with the flames of burning tankers and supply ships. The air force over the sea was turning on the power. Every day the Marylands searched for enemy ships, every night when they had been sighted the Wellingtons carried their torpedoes against them, while at dawn the Hudsons took bombs to finish them off.

Not all the ships that ran to Tobruk or Benghazi were hit. Some got through. Of those, some were knocked out in the harbours, but even so part of their cargo was unloaded and sent on the journey to the front. And there the Beaufighters and the Bisleys struck at it, day after day, whether it travelled by coastal barge, by truck or by train. The Germans had by that time put the desert railway into use again, bringing over from Europe some diesel engines to haul the captured trucks. The trains had no more luck than the barges and the lorries. One was discovered by a reconnaissance aircraft to be heading east with a haul of some 26 trucks, some of them flat and carrying heavy artillery, the others covered and doubtless containing

The mail run to Benghazi was now possible only to the heavy four-engined bombers based near Cairo. It did not stop. Halifaxes bombed by night, U.S. Liberators by day. Ground-crews prepare a Halifax as the sun goes down.

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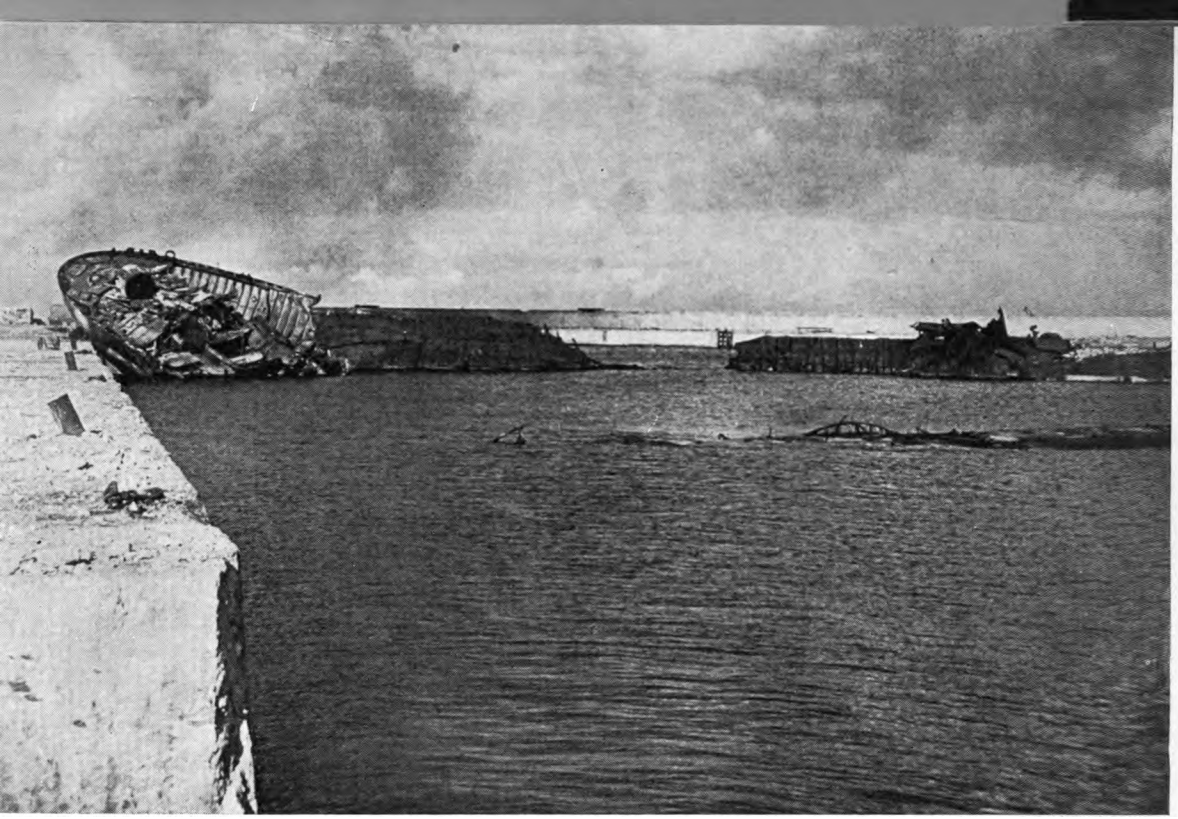

Written off. When the Eighth Army entered Benghazi, they found the harbour strewn with wreckage from the great bombing raids. *Above*, the stern of the ammunition ship hurled on to the Cathedral Mole, behind it the broken remains of Harry. In the foreground is Johnny, awash. *Below*, spectacular damage east of Johnny. The bow plates of the vessel have been curled right back over the shattered superstructure amidships.

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ammunition. Two Bisley light bombers escorted by four Beaufighters made out to sea, then turned south again over the coast just at the spot where it had been estimated the train would be. They found it near Mischiefa, rumbling across a barren stretch of desert south-east of Sidi Barrani.

Two of the Beaufighters flew in at low level with their cannon firing. They made many hits on the front part of the train so that, as they drew off, there were already small flames licking round the engine tender. The bombs from the Bisleys, followed by more cannonfire from the other two Beaufighters, fanned this fire into a large blaze. By that time the first pair of Beaufighters was round again, strafing twice up and down the whole length of the train. Suddenly a shell touched off the ammunition in the last four wagons. The Beaufighters had to swerve sharply to avoid oil drums, track wheels, pieces of metal rail that were flung to a height of several hundred feet. There was no need to attack that train any more. Flames were running along its whole length, wagons were exploding, a column of smoke was rising that could still be seen when the Beaufighters had completed 40 miles of the homeward journey.

Four more trains were attacked and destroyed in that way during the next few days. The freight which was thus lost was roughly equivalent to the cargo of a merchant ship of some 4,000 tons. That was only a part of the work done by the Beaufighter squadrons. They flew everywhere along the supply routes, stinging like hornets. They left behind them each day a trail of smoking and overturned lorries, a heap of shell-torn bodies, a running pool of burning petrol, a schooner down by the bows with a drift of smoke from her stern, the wreck of a couple of transport aircraft, a line of riddled seaplanes at their moorings at Bomba. Each time they flew, some further necessity of battle was denied to the enemy.

In the battlefield itself the air fighting had by no means drifted back into a lull after the defeat of the German advance in the south. It was not at such intensity, but the Luftwaffe still had a strong force of Stukas at the Fuka landing grounds and of Messerschmitts at Daba. They still directed large formations of Stukas at our troops, preferring the moment just before dusk so that they could approach out of the sun and return into darkness. Some of these raids were intercepted by our fighters, some not. It is the most intricate problem so to direct a fighter sweep over many miles of desert that it can intercept a formation of aircraft at the right time and height.

It worked well, though, on October 1st, when 18 Stukas escorted by 20 Me.109s swung out of the setting sun into the sights of a dozen Kittyhawks. The pilot leading top cover glanced downwards and saw a remarkable sight. Six Kittyhawks were flying in perfect echelon, each firing its guns. Ahead of them the wobbling Stuka formation was yielding every moment a new gap, as one after the other the aircraft dropped away in flames. Flight Lieutenant M. C. H. Barber, D.F.C., a Rhodesian pilot who happened never before to have seen a Stuka in flight, marked the occasion by himself shooting down three of them. As the first dropped from in front of his guns, he could see six Stukas burning in the air at the same time, including his own victim. Four of them were in flames and counted as certainly destroyed; the other two were as yet only smoking and were put down as probables. In all, six Stukas were certainly destroyed and as many again limped back into the sunset, sadly crippled, even if they got home at all. There was not so much as a bullet hole in any of the Kittyhawks.

Light bombers and fighter-bombers had not been particularly active at this time, but the day of October 9th was especially set aside for them. It was known as the day of the "weather blitz." Autumnal thunderstorms had broken out with severity in many places, but these storms in the desert are remarkably local. One area can be flooded within a few hours, another area only 10 miles away can remain a parched expanse of sand and dust. On October 8th the storms were kind to the Allies. Sufficient rain fell on our own airfields only to lay the dust, but when the films from the reconnaissance cameras were developed it was seen that parts of the main enemy fighter airfields at Daba were waterlogged. A good many of their aircraft would certainly be unable to get off the ground.

Just before dawn on October 9th the desert airfields were vibrating with the noise of aircraft engines. At first light the biggest day striking-force which had ever flown in the desert was bearing down on Daba. In the centre were the light bombers, several squadrons of them. Pressed close around them were the fighter-bombers. Weaving and turning all over the

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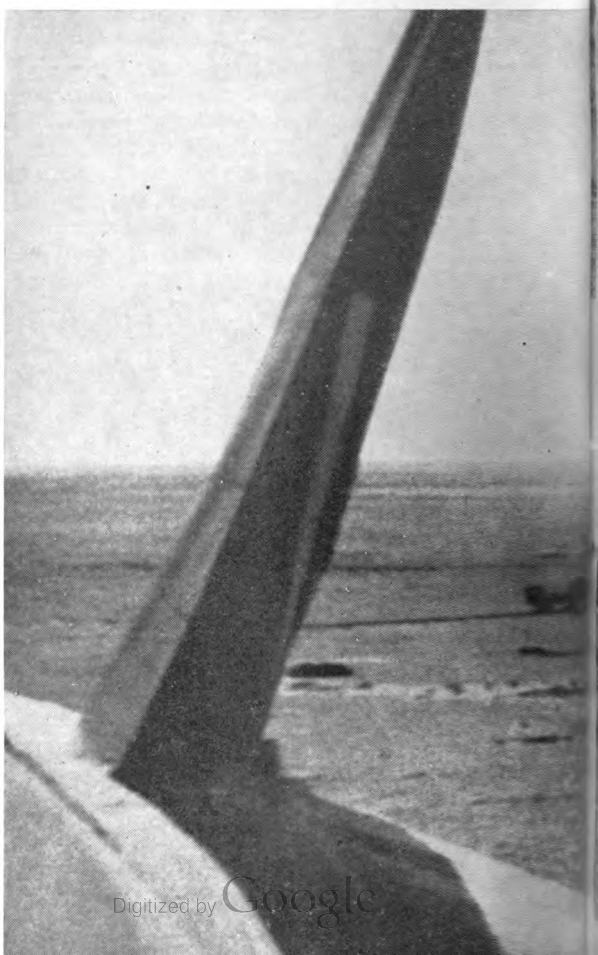
surrounding sky were the fighters, Spitfires on top. All told, more than 150 aircraft flew out of the rising sun over Daba airfields. The bombs were released in a pattern, all at the same time. One pilot, glancing up, described the sky as flecked with seemingly innumerable yellow spots —the bombs on their way down. This first big attack was in fact an affair on three levels. In the middle was the bomber force, fanning out to bomb, closing in to move steadily away in a broad circle. Below were the fighter-bombers and cannon fighters sweeping through the dust at little more than the height of tent poles, shooting everything that came into their sights.

"It started as we came in over the coast," said a squadron commander describing it, "where a group of 10 men, probably the crew of a coastal battery, were staring at us with open mouths. I was only 150 yards away when I opened fire. I saw my ammunition strike their bodies and they must all have been killed. Over the landing ground itself there were dozens of our fighters all close to the deck dodging among the tents and trucks, their guns firing streaks in every direction. Several of us came across aircraft parked in dispersals and shot them up thoroughly. The confusion among the Jerry troops must have been awful. They were rushing out of tents and dashing over to slit trenches, which quite a lot of them never reached."

High above all this was the top level of the battle, in which other fighter squadrons were holding off formations of enemy fighters which had managed to get into the air from other landing grounds. In this engagement five Messerschmitts were shot down for the loss of two of our fighters. In this engagement, too, the United States Army Air Forces scored their first fighter victory in the desert. Lieutenant W. J. Mount, in a Warhawk, a development of the Kittyhawk, chased a Messerschmitt out to sea and shot off its tail.

For the rest of the day, raids on a smaller scale were directed against the Daba landing grounds. The evening was rounded off with another raid almost as big as that first one in the morning. The sum of the day's effort was the destruction of at least 50 enemy aircraft, probably a much larger number. Ten Messerschmitts were shot down in air combat and more than that number crippled. Twenty enemy fighters and bombers were knocked out by the bombs that fell on the landing grounds. Fourteen were hit by the low-flying fighters, who

The attacks on the trains. Day after day the Beaufighters swept the land routes—cannon shells fire a train near Matruh.



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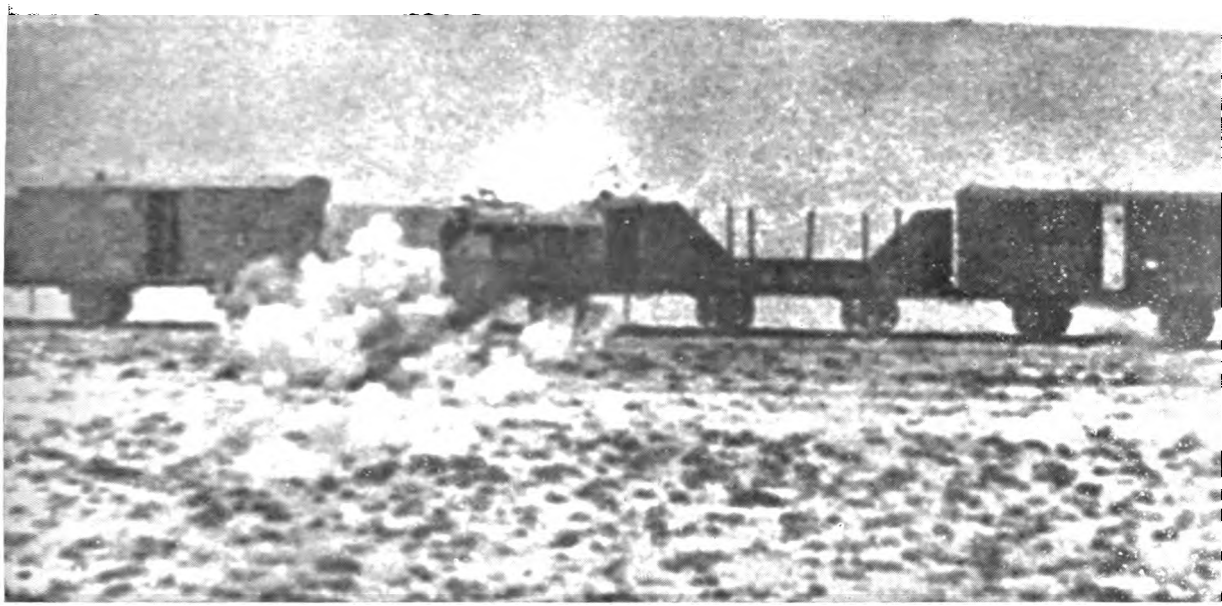

Ammunition wagons explode as Beaufighters rake a train of 26 trucks near Mischiefa. *Above*, close-up of the broadside attack : the A.A. truck is on fire. *Below*, the explosions begin, flames lick along the whole length.

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Journey's end. A German supply train lies blasted by the R.A.F. in a siding at Mersa Matruh. In the space of a few days, Rommel lost 4,000 tons of supplies through these attacks.

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also claimed 30 trucks, two A.A. gunposts and an ammunition dump. It cost us 12 fighter aircraft, most of them lost in the hazardous task of strafing.

The "weather blitz" convinced the enemy that the 8th Army was about to launch a full-scale attack, for which Axis propagandists at once prepared their public. Rome radio, in the intervals of announcing the stupendous number of British aircraft that had been destroyed, hinted darkly at "considerable tank movements in the enemy lines." Doubtless the enemy troops were tensed next morning to receive an attack. But the blitz on Daba had been only a freak of the weather and no land attack followed. The day was not quite yet.

Meanwhile, a fierce air battle had sprung up elsewhere, at Malta, 60 miles from Sicily, 900 miles from Alamein. Since the evening of May 10th, when the newly arrived Spitfires had driven back the bomber formations with such striking losses, the island had been comparatively free from raids on the knock-out scale.

The Germans, still under-estimating the endurance of the defenders, were counting on blockade to reduce the fortress. It is said that they contemplated a full-scale invasion of Malta during the summer, but, once Tobruk had fallen, cancelled it in favour of a drive on Egypt, judging that the island would automatically fall to them in course of time. Whatever the truth of that story, by October the siege conditions of Malta were pressing.

The Germans chose that time to attempt another big bombing attack on the island. It began on October 11th and continued at intensity for a week. Air Vice-Marshal Sir Keith Park, K.B.E., C.B., M.C., D.F.C., who then held the air command at Malta, felt he had sufficient power on his airfields to adopt a new policy, not so much of defence as of attack. The bombers which came from Sicily were intercepted by Spitfires, not over Malta itself, but over the sea long before they arrived at its coast.

In that week 113 enemy aircraft were definitely destroyed and 70 more so badly crippled that it was doubtful if they could manage even the few sea miles back to Sicily. The numbers which received more or less severe damage ran past count into three figures. Few of the enemy bombers had succeeded in penetrating over Malta's coast, and the damage done by them amounted to little. More important than all, the airfields of the island had been secured to us. Within a few weeks they were to play a vital part in what was one of the crucial battles of the war.

11—Two Strong Arms Strike

IT IS DIFFICULT to fix the date when a modern battle begins. The "weather blitz" on Daba airfield on October 9th, the defence of Malta during the second and third weeks of that month, the obliteration of a railway train on October 12th, the air torpedo that split a merchant vessel in half off Tobruk on the night of October 1st/2nd—each of these was an integral part of the Battle of Alamein and had a measurable effect on its result.

The opening of the battle proper, however, is best fixed on the morning of October 19th, 1942, when a small force of Kittybombers raided Daba landing grounds, knocked out a few aircraft and started a large fire. The great assault by the 8th Army came on the night of October 23rd/24th. In 12 days more, by November 4th, the victory that was to change the features of the war had been won. Soon the church bells of the villages of England were to peal in celebration for the first time since 1940, while on the same day a corporal of the R.A.F. rang the bell of a church standing comparatively unharmed in the midst of desolation and sent an answering peal over the ruins of Tobruk.

The battle position at Alamein was not complicated. The two opposing forces faced each other on a front of only some 30 miles of desert, running south from the sea at Alamein to the eastern tip of the Qattara Depression, impassable by fighting vehicles. This position was heavily mined and strongpointed on either side, though in the far south the enemy was across some of our minefields.

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Close behind the armies were the airfields of the air striking-forces, ours grouped around the Alexandria–Cairo road, the enemy's at Daba and Fuka. For a fighter force we had Spitfires, Kittyhawks, Tomahawks, Hurricanes and Warhawks: he had Messerschmitts, some of them 109Gs of the latest type, and Italian Macchi 202s. Our light and medium day-bomber force was composed of Bostons, Baltimores and Mitchells, his of Stukas and Ju.88s. In night bombing we had a marked advantage with a strong force of twin-engine Wellingtons backed by four-engine Liberators, Halifaxes and Fortresses; Ju.88s and Heinkel 111s were the strength of his night-bombing force. Over the Mediterranean Sea we had more and better aircraft for dropping bomb or torpedo by night or by day, together with long-range Beaufighters of great worth; the enemy on the other hand had a positional advantage, holding practically all the airfields of the Libyan and Egyptian coastline, of Italy, Greece and Crete.

It was clear that any attempt to remove the enemy forces from the Alamein positions would have to be made in a frontal assault. There was no room for those wide sweeping movements beloved of desert commanders. It was planned therefore that air power should strike the first blow, to knock out during a period of five days and four nights as many aircraft as possible on their landing grounds. When this had been accomplished, the artillery was to concentrate a barrage of great strength on the enemy batteries and front lines while the infantry and the sappers advanced to clear gaps in the enemy minefields. Through these gaps our armour would be passed into wider space of manœuvre beyond. Meanwhile, the night bombers, aided by naval Albacores, were to attack the enemy behind the lines as he concentrated to meet the land attack. Directly our land forces joined battle, the full weight of air power would be directed against the enemy army both by night and by day. Throughout the entire battle, air power would continue to cut off the enemy's supplies.

From this brief summary it will be seen how harmoniously the air and land forces of the Allies had learned to co-operate in the Middle East. They were two strengths with one aim, the obliteration of the enemy where he stood. Each force made its own contribution, in concert with the other, by the methods best suited to it. Here was no parochial idea of one arm striking while the other did its best to help, but a conception of two strong arms—an ambidextrous power—both striking at the same enemy. It should be emphasised that this is an account only of the air power which was used in the battle and that it cannot pretend to give more than the sketchiest outline of the already historic battle fought by the 8th Army.

The music starts. A shadow arm rises to strike the gong which scrambles the S.A.A.F. Bostons into the air—a symbol of the ominous crescendo over the desert on the afternoon of October 19th.

The opening assault on Daba airfield by a comparatively small force of fighter-bombers on the morning of October 19th caught the Luftwaffe a little on one foot. After their experience of the "weather blitz" 10 days earlier, the German airmen probably expected the real concerto to open with a crashing tutti from the full orchestra. The roll on the kettle-drums was not recognised as the opening bars. They did not therefore at once turn their whole fighter strength into battle, and throughout the day we lost one Kittyhawk.

Yet the music had indeed started. There was an ominous crescendo in the afternoon when a strong formation of Baltimores and Mitchells, swarming with fighter escort, appeared over a landing ground at Qotafiya. From the pattern of their bomb bursts sprang three large fires, one visible at a distance of 50 miles. For the rest of

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the afternoon and into the short evening Kittyhawks darted here and there over the enemy landing grounds, bombing and making away again. That night the Wellingtons bumbled overhead, bombing as the flares from the Albacores burst into a brightness to rival the moon and floated gently in the sky.

Next day the Luftwaffe had probably still not made up its mind whether this were the real assault, but its commanders knew certainly that they were losing too many aircraft on the ground. They sent up their fighters in force. Not all of them even got into the air. Seven Messerschmitts started to take off from Daba just as one of our raids sailed overhead; the bombs burst among them as they ran across the ground, and none was afterwards seen in the sky. The attack was developing. From early morning the light bombers and their escorts were forming up to bomb the landing grounds at Daba and Fuka all day long. The big raids were interspersed with swift sallies by fighter-bombers alone. Continually fighter patrols swept the battle area, enlarging their territory ever farther and farther towards the west, with the Spitfires in that deceptively gentle flight high on top. It was a day of scattered air combat in the course of which each side lost 11 fighters. German A.A. gunners also shot down one of our bombers. The Wellingtons saw to it that the men who had been bombed all that day on Daba slept little that night.

October 21st was a disappointing day, almost a lull in the battle. For this the weather was responsible. Thick banks of cloud built up over the desert. Three waves of light bombers tried to pierce them during the day in order to bomb Daba, but it is doubtful whether their bombing was satisfactory; the crews could see few results.

The following day the desert striking-force began to show the enemy that air power for which it had striven and trained so long and which it now wielded with such suppleness. Not only were there three big raids on Daba but our fighters deliberately began to patrol, not over their own landing grounds, but over those of the enemy. Back and forth they cruised over Daba itself for periods of a quarter of an hour or more, again and again throughout the day, challenging the

The Bostons go out. It was planned that air power should strike the first blow in the battle of Alamein, by knocking out the Luftwaffe on its landing grounds.

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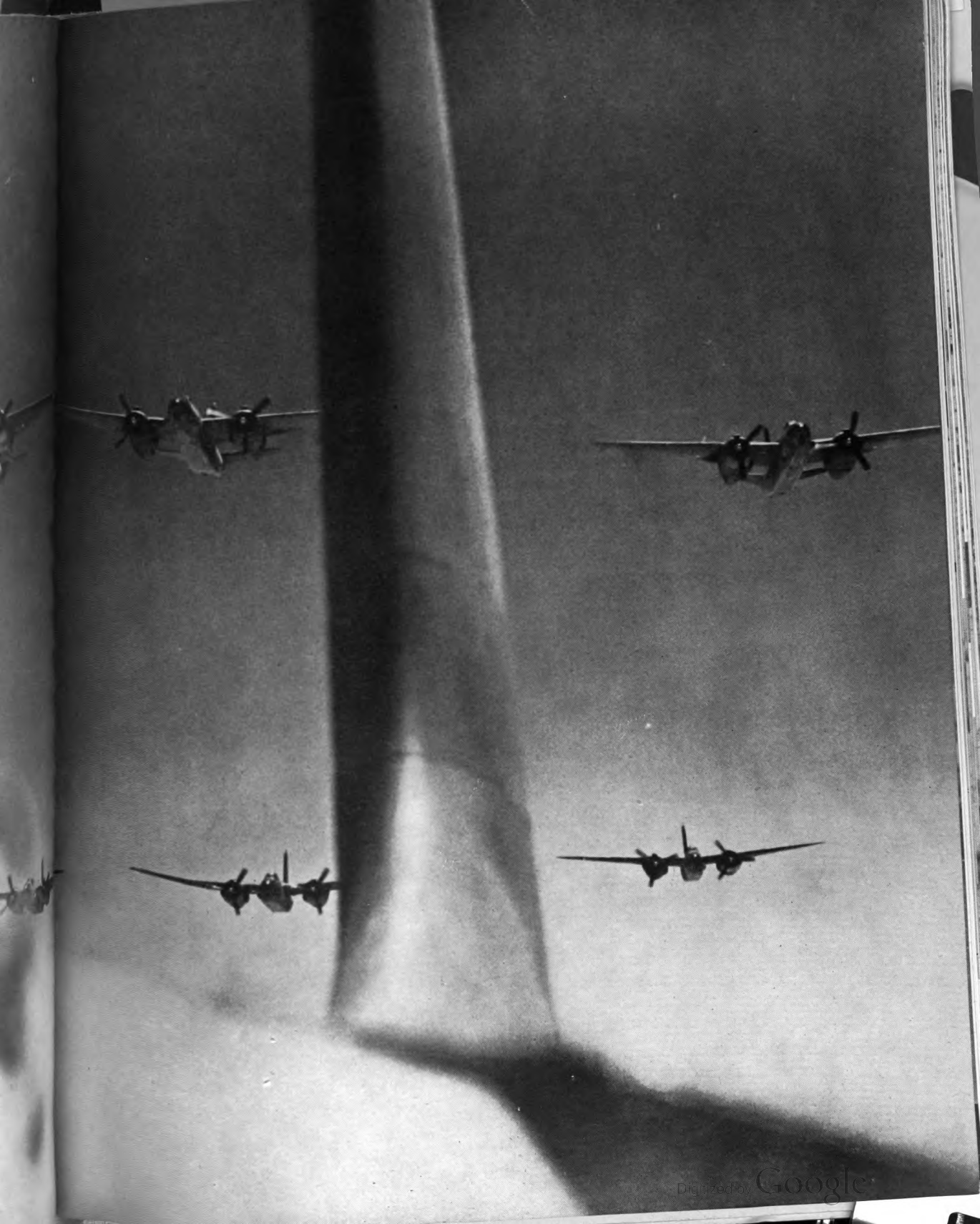

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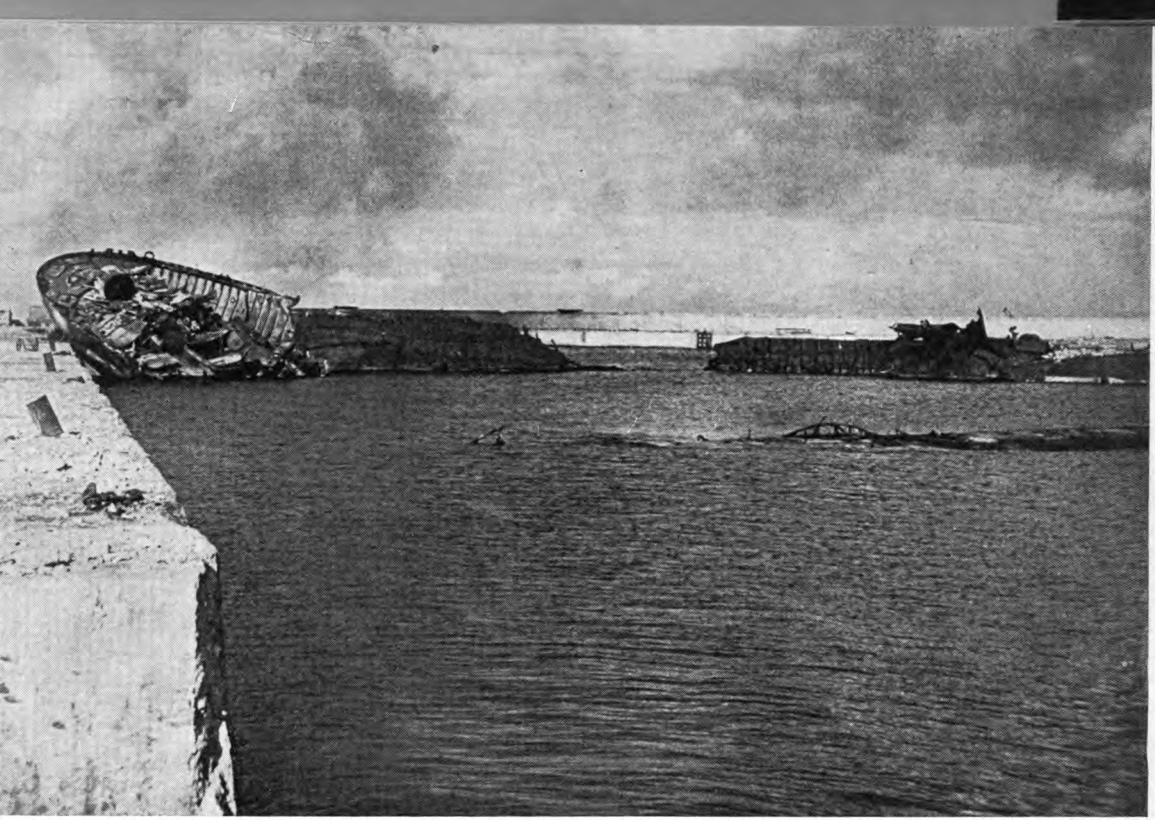

Written off. When the Eighth Army entered Benghazi, they found the harbour strewn with wreckage from the great bombing raids. *Above*, the stern of the ammunition ship hurled on to the Cathedral Mole, behind it the broken remains of Harry. In the foreground is Johnny, awash. *Below*, spectacular damage east of Johnny. The bow plates of the vessel have been curled right back over the shattered superstructure amidships.

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ammunition. Two Bisley light bombers escorted by four Beaufighters made out to sea, then turned south again over the coast just at the spot where it had been estimated the train would be. They found it near Mischiefa, rumbling across a barren stretch of desert south-east of Sidi Barrani.

Two of the Beaufighters flew in at low level with their cannon firing. They made many hits on the front part of the train so that, as they drew off, there were already small flames licking round the engine tender. The bombs from the Bisleys, followed by more cannonfire from the other two Beaufighters, fanned this fire into a large blaze. By that time the first pair of Beaufighters was round again, strafing twice up and down the whole length of the train. Suddenly a shell touched off the ammunition in the last four wagons. The Beaufighters had to swerve sharply to avoid oil drums, track wheels, pieces of metal rail that were flung to a height of several hundred feet. There was no need to attack that train any more. Flames were running along its whole length, wagons were exploding, a column of smoke was rising that could still be seen when the Beaufighters had completed 40 miles of the homeward journey.

Four more trains were attacked and destroyed in that way during the next few days. The freight which was thus lost was roughly equivalent to the cargo of a merchant ship of some 4,000 tons. That was only a part of the work done by the Beaufighter squadrons. They flew everywhere along the supply routes, stinging like hornets. They left behind them each day a trail of smoking and overturned lorries, a heap of shell-torn bodies, a running pool of burning petrol, a schooner down by the bows with a drift of smoke from her stern, the wreck of a couple of transport aircraft, a line of riddled seaplanes at their moorings at Bomba. Each time they flew, some further necessity of battle was denied to the enemy.

In the battlefield itself the air fighting had by no means drifted back into a lull after the defeat of the German advance in the south. It was not at such intensity, but the Luftwaffe still had a strong force of Stukas at the Fuka landing grounds and of Messerschmitts at Daba. They still directed large formations of Stukas at our troops, preferring the moment just before dusk so that they could approach out of the sun and return into darkness. Some of these raids were intercepted by our fighters, some not. It is the most intricate problem so to direct a fighter sweep over many miles of desert that it can intercept a formation of aircraft at the right time and height.

It worked well, though, on October 1st, when 18 Stukas escorted by 20 Me.109s swung out of the setting sun into the sights of a dozen Kittyhawks. The pilot leading top cover glanced downwards and saw a remarkable sight. Six Kittyhawks were flying in perfect echelon, each firing its guns. Ahead of them the wobbling Stuka formation was yielding every moment a new gap, as one after the other the aircraft dropped away in flames. Flight Lieutenant M. C. H. Barber, D.F.C., a Rhodesian pilot who happened never before to have seen a Stuka in flight, marked the occasion by himself shooting down three of them. As the first dropped from in front of his guns, he could see six Stukas burning in the air at the same time, including his own victim. Four of them were in flames and counted as certainly destroyed; the other two were as yet only smoking and were put down as probables. In all, six Stukas were certainly destroyed and as many again limped back into the sunset, sadly crippled, even if they got home at all. There was not so much as a bullet hole in any of the Kittyhawks.

Light bombers and fighter-bombers had not been particularly active at this time, but the day of October 9th was especially set aside for them. It was known as the day of the "weather blitz." Autumnal thunderstorms had broken out with severity in many places, but these storms in the desert are remarkably local. One area can be flooded within a few hours, another area only 10 miles away can remain a parched expanse of sand and dust. On October 8th the storms were kind to the Allies. Sufficient rain fell on our own airfields only to lay the dust, but when the films from the reconnaissance cameras were developed it was seen that parts of the main enemy fighter airfields at Daba were waterlogged. A good many of their aircraft would certainly be unable to get off the ground.

Just before dawn on October 9th the desert airfields were vibrating with the noise of aircraft engines. At first light the biggest day striking-force which had ever flown in the desert was bearing down on Daba. In the centre were the light bombers, several squadrons of them. Pressed close around them were the fighter-bombers. Weaving and turning all over the

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surrounding sky were the fighters, Spitfires on top. All told, more than 150 aircraft flew out of the rising sun over Daba airfields. The bombs were released in a pattern, all at the same time. One pilot, glancing up, described the sky as flecked with seemingly innumerable yellow spots —the bombs on their way down. This first big attack was in fact an affair on three levels. In the middle was the bomber force, fanning out to bomb, closing in to move steadily away in a broad circle. Below were the fighter-bombers and cannon fighters sweeping through the dust at little more than the height of tent poles, shooting everything that came into their sights.

"It started as we came in over the coast," said a squadron commander describing it, "where a group of 10 men, probably the crew of a coastal battery, were staring at us with open mouths. I was only 150 yards away when I opened fire. I saw my ammunition strike their bodies and they must all have been killed. Over the landing ground itself there were dozens of our fighters all close to the deck dodging among the tents and trucks, their guns firing streaks in every direction. Several of us came across aircraft parked in dispersals and shot them up thoroughly. The confusion among the Jerry troops must have been awful. They were rushing out of tents and dashing over to slit trenches, which quite a lot of them never reached."

High above all this was the top level of the battle, in which other fighter squadrons were holding off formations of enemy fighters which had managed to get into the air from other landing grounds. In this engagement five Messerschmitts were shot down for the loss of two of our fighters. In this engagement, too, the United States Army Air Forces scored their first fighter victory in the desert. Lieutenant W. J. Mount, in a Warhawk, a development of the Kittyhawk, chased a Messerschmitt out to sea and shot off its tail.

For the rest of the day, raids on a smaller scale were directed against the Daba landing grounds. The evening was rounded off with another raid almost as big as that first one in the morning. The sum of the day's effort was the destruction of at least 50 enemy aircraft, probably a much larger number. Ten Messerschmitts were shot down in air combat and more than that number crippled. Twenty enemy fighters and bombers were knocked out by the bombs that fell on the landing grounds. Fourteen were hit by the low-flying fighters, who

The attacks on the trains. Day after day the Beaufighters swept the land routes—cannon shells fire a train near Matruh.

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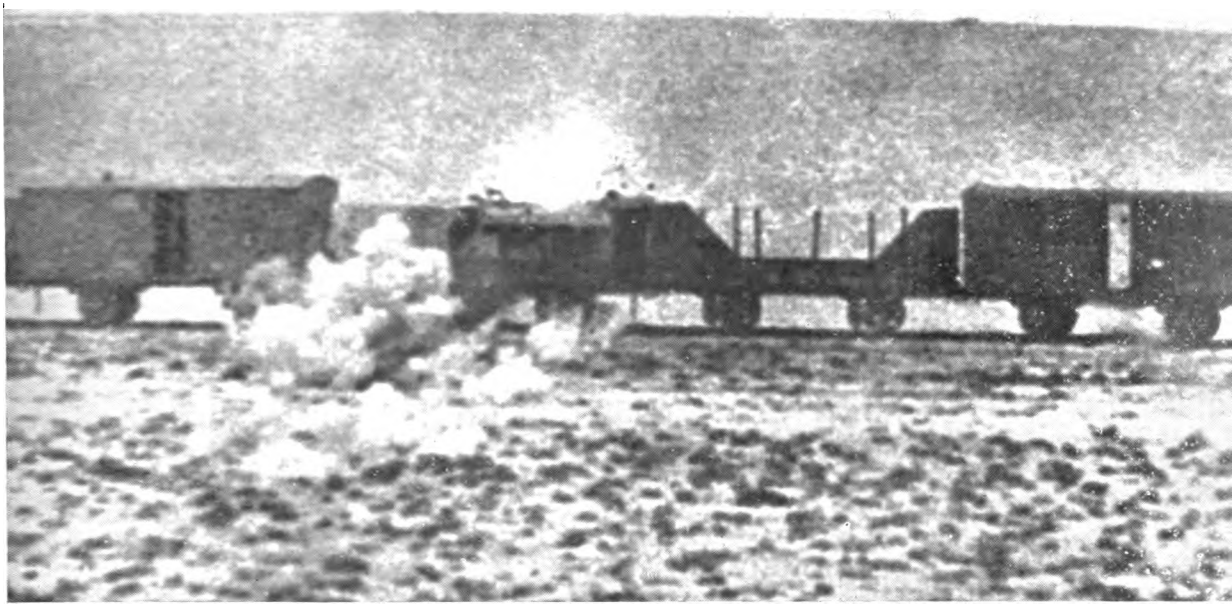

Ammunition wagons explode as Beaufighters rake a train of 26 trucks near Mischiefa. *Above*, close-up of the broadside attack : the A.A. truck is on fire. *Below*, the explosions begin, flames lick along the whole length.

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UNIVERSITY OF MICHIGAN

Journey's end. A German supply train lies blasted by the R.A.F. in a siding at Mersa Matruh. In the space of a few days, Rommel lost 4,000 tons of supplies through these attacks.

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the afternoon and into the short evening Kittyhawks darted here and there over the enemy landing grounds, bombing and making away again. That night the Wellingtons bumbled overhead, bombing as the flares from the Albacores burst into a brightness to rival the moon and floated gently in the sky.

Next day the Luftwaffe had probably still not made up its mind whether this were the real assault, but its commanders knew certainly that they were losing too many aircraft on the ground. They sent up their fighters in force. Not all of them even got into the air. Seven Messerschmitts started to take off from Daba just as one of our raids sailed overhead; the bombs burst among them as they ran across the ground, and none was afterwards seen in the sky. The attack was developing. From early morning the light bombers and their escorts were forming up to bomb the landing grounds at Daba and Fuka all day long. The big raids were interspersed with swift sallies by fighter-bombers alone. Continually fighter patrols swept the battle area, enlarging their territory ever farther and farther towards the west, with the Spitfires in that deceptively gentle flight high on top. It was a day of scattered air combat in the course of which each side lost 11 fighters. German A.A. gunners also shot down one of our bombers. The Wellingtons saw to it that the men who had been bombed all that day on Daba slept little that night.

October 21st was a disappointing day, almost a lull in the battle. For this the weather was responsible. Thick banks of cloud built up over the desert. Three waves of light bombers tried to pierce them during the day in order to bomb Daba, but it is doubtful whether their bombing was satisfactory; the crews could see few results.

The following day the desert striking-force began to show the enemy that air power for which it had striven and trained so long and which it now wielded with such suppleness. Not only were there three big raids on Daba but our fighters deliberately began to patrol, not over their own landing grounds, but over those of the enemy. Back and forth they cruised over Daba itself for periods of a quarter of an hour or more, again and again throughout the day, challenging the

The Bostons go out. It was planned that air power should strike the first blow in the battle of Alamein, by knocking out the Luftwaffe on its landing grounds.

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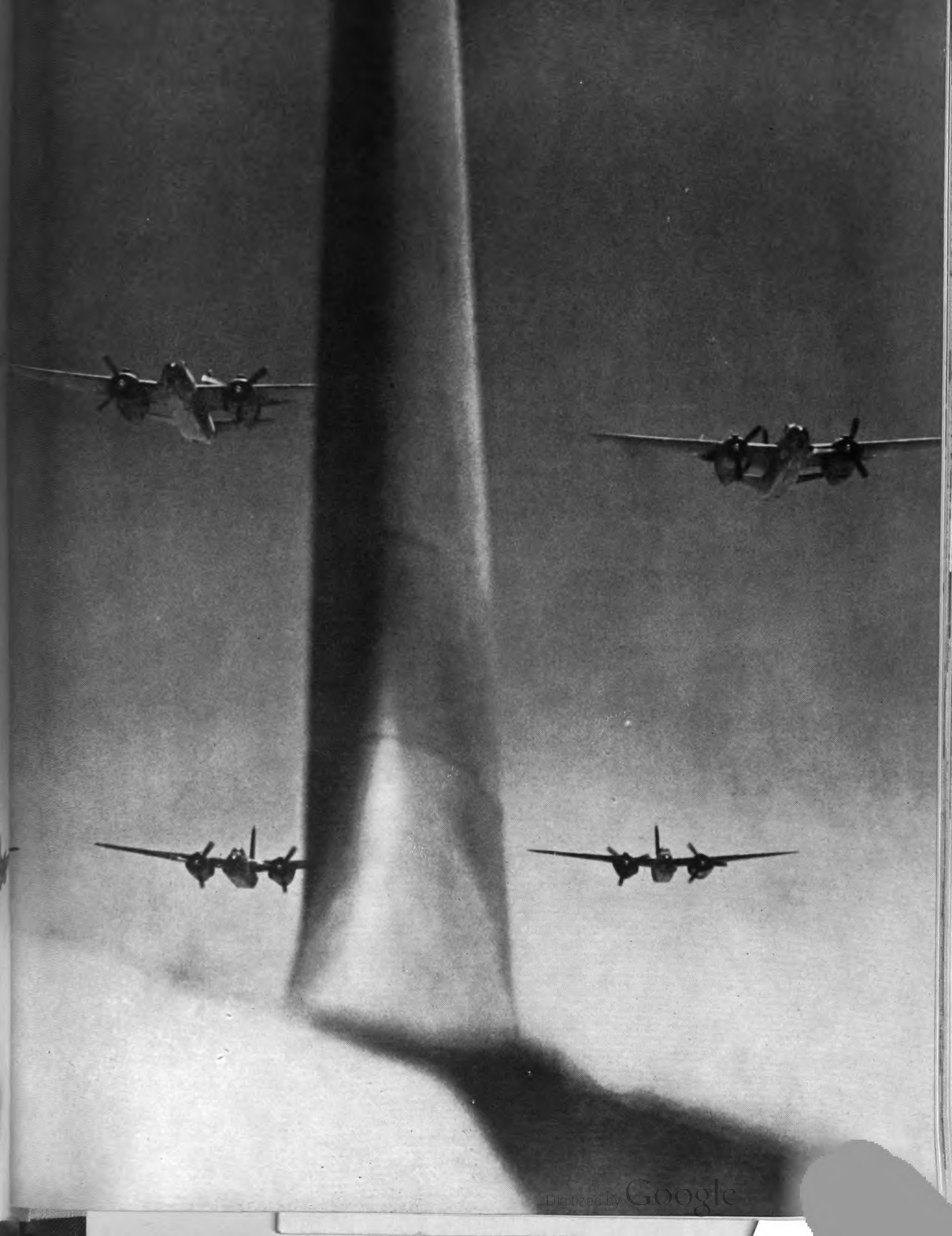
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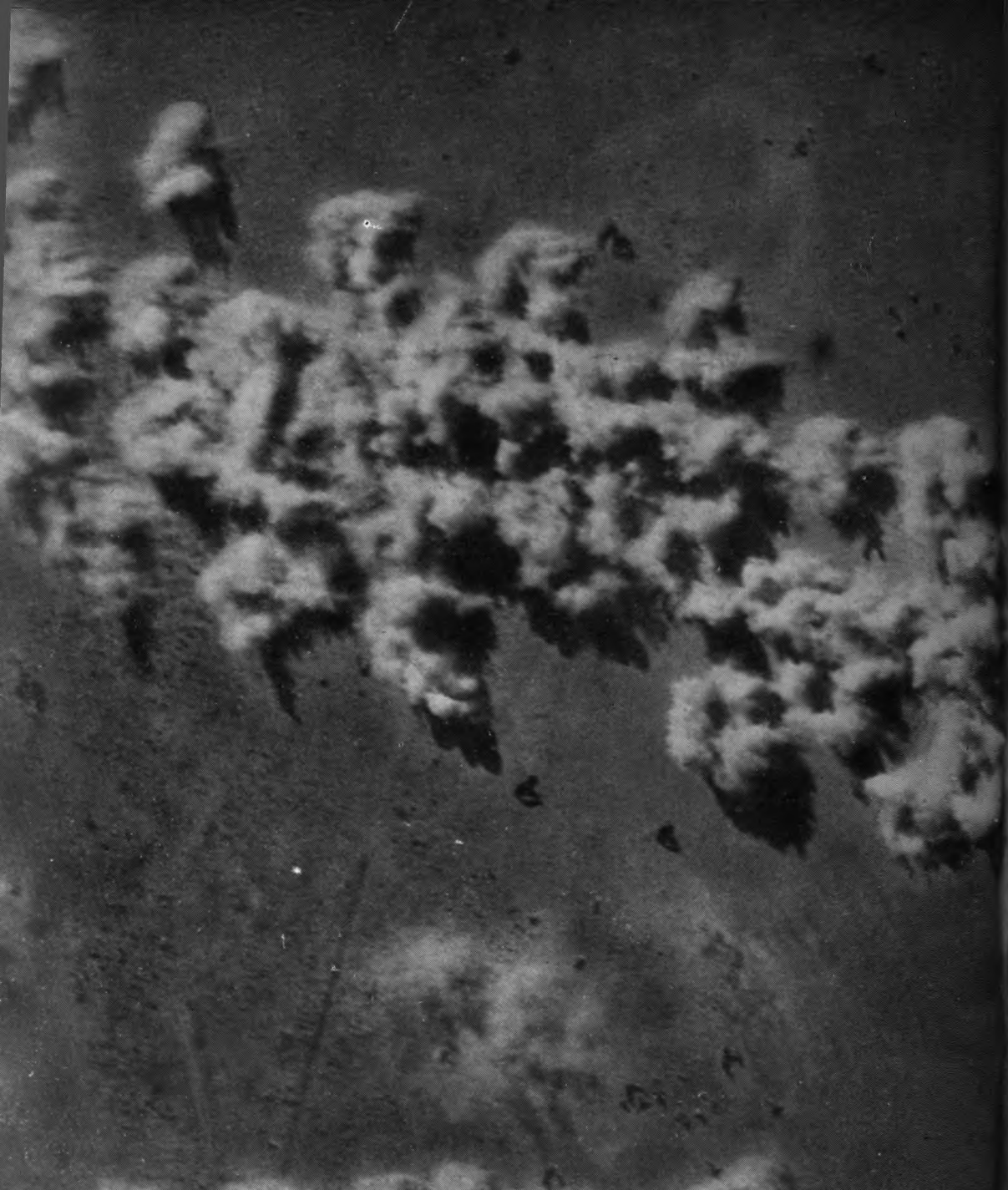

One hundred and fifty bombs crash down on the landing ground at Fuka.

The enemy aircraft can be seen dispersed in blast-pits; already two are on fire.

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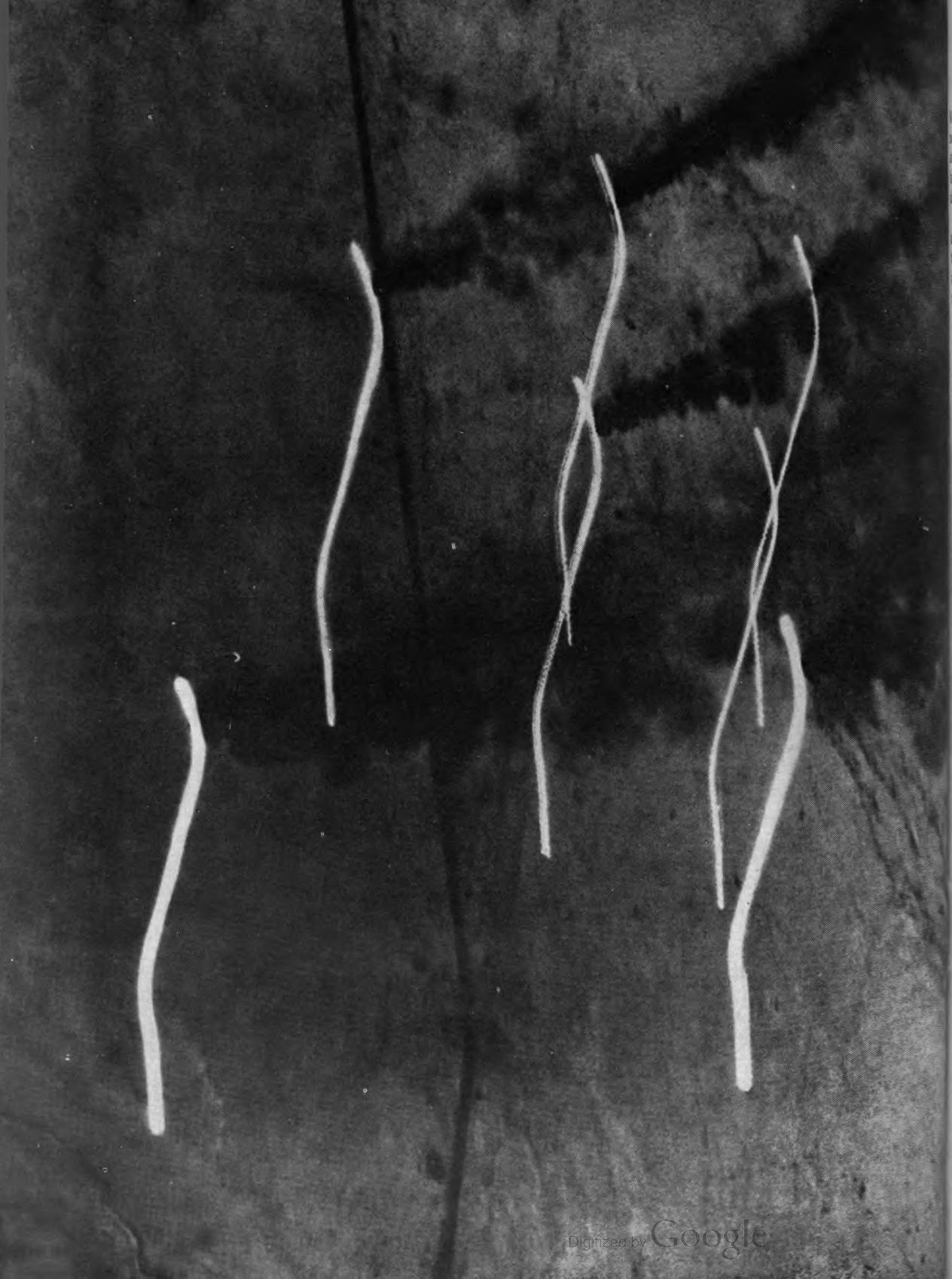

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Messerschmitts to come up and fight. This had never happened before in the desert. Fighter attacks on airfields of either side had been swift, hit-and-run affairs, a moment or two of destruction and away.

When first the Messerschmitt pilots looked up and saw patrols of Spitfires weaving steadily over their own tents they must have jumped into their aircraft with great confidence. Those Spitfires, sitting up for a fight over the whole enemy fighter force, were asking for trouble; the Messerschmitts came up to show them the foolishness of such tactics. Four Messerschmitts were promptly shot down on to their own airfield. No Spitfires were lost. The patrols flew steadily on. From that moment the Luftwaffe was completely on the defensive.

It is true that our pilots were still suffering losses in other ways. Those escorting the bombers had a hard time of it, losing five for only two of the enemy, and a bomber to the A.A. gunners. But that night the Wellingtons came in force, supplemented also by light bombers which switched from daylight to darkness. Again Daba was the target. Fires and explosions pitted the night face of Daba as they had pitted the panzer laagers during the September battle in the south. There was no stopping the orchestra now, and the Luftwaffe knew it. They sent up a few night fighters and one of those was shot down. They had lost the power to defend their own airfields by night, when the Wellingtons came all through the dark hours, or by day, when the Spitfires calmly swept back and forth above them, as one pilot put it, "admiring the fine desert view, very clear out to the coast and a light haze over the sea."

That first phase of the Battle of Alamein, fought by air power alone against the enemy air force either in the air or on the airfields, was estimated at the time to have reduced the serviceability of the German and Italian squadrons to between 15 and 20 per cent. of their numerical strength. In normal circumstances their serviceability, their actual fighting strength at any one time, would probably have been in the desert about 50 per cent. of their total numbers. In other words, that first phase of the battle wiped out during the relevant days roughly three-fifths of the enemy's desert air power.

Later, the actual results of that bombing were to be inspected on the landing grounds at Daba. They more than supported the estimate.

* * *

At 2200 hours on October 23rd the first wave of more than 70 bombers and flare-dropping aircraft switched the nightly attack away from the enemy landing grounds on to his troop positions all along the battlefront. More than 30 Hurricanes trained in night flying started at Alamein and strafed as far back as Fuka. It was a night of bright moon, brighter far over the desert than the moon ever is in Britain. The horizon itself was dimly visible and every tent had a moon shadow.

As the bombers kept on and on through the night, the usual fires and explosions broke out on the desert below. There was one fire in particular in the south throwing smoke to 3,000 feet, while in the north a large ammunition dump was blown. There were several rocking explosions. At first the aircraft were met with strong A.A. fire, but later in the night it dwindled. It was not the bombing which accomplished that, although with the help of flares Wellingtons knocked out a number of gun positions during the night. The enemy gunners' attention was distracted elsewhere. Suddenly the battle line sparkled with gun flashes. For 20 minutes 800 Allied guns fired continuously along the front. The artillery had opened fire, the sappers and infantry were moving steadily forward into the enemy minefields, storming Miteiriya Ridge. By dawn they had made and held two gaps in the minefields.

They had been assisted by a few light bombers which flew at a low level across the minefields and laid smoke screens at the points of assault. Others laid them at points where no assault was intended, just to make things a little more difficult. One indeed was busily laying a smoke screen along the beach at Ras el Kenayis, off which some British warships were manœuvring with a great show of gunfire and commotion. So well did they deceive the enemy that next day Rome radio repulsed with heavy losses a British landing on the coast at Ras el Kenayis, which in fact had been neither intended nor attempted.

"The bombers kept on and on through the night." Seven fires, lit by Wellingtons in the battle area below, have registered while the camera shutter was open; the photoflash reveals seven plumes of black oil-smoke rising from them.

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It had become a tradition of the Desert Air Force that on critical days of land warfare it should create a new record in the air. It did so on October 24th, the first full day of the land assault. The total number of fighter, fighter-bomber and bomber sorties flown during the day was nearly 1,000. The moon was still bright against the dawn sky when the first escorted light-bomber raids took off for the battle area; it had not completely paled before three such formations were in the air. The sun had set before the last of the bombers touched down for the last time that day.

The whole weight was flung against the battle area, chiefly just west of the two gaps which our infantry held in the minefields. In addition there were two smaller raids on Daba landing grounds, still further to discourage the Luftwaffe. Not that the enemy air forces were very troublesome. After the days and nights of attack which they had sustained, they thought more of warding the bombs from their own dispersal areas than of intervening in this first day of full battle. A small number of Messerschmitts and Macchis made a few half-hearted attacks, and towards evening a few fighter-bomber raids were attempted by some Messerschmitts. Compared with the display of Allied air power, the enemy air forces amounted to nothing on that day. There were plenty of targets for them, since all our armour lay behind the minefields waiting for the gaps to be enlarged sufficiently for it to pass through. But the Stukas did not come.

Chief opposition to our bombers came from the German ground gunners. Having at that time no tanks to meet they swung their guns upwards and filled the sky with shells. In the course of the day six bombers and five fighters were shot from our formations. It was the heaviest bomber loss we had ever suffered in fighter-escorted raids; on the other hand, it was the heaviest bombing assault the light squadrons had ever delivered.

All day long faint, artificial dust storms hung over the landing grounds, created by the wheels at take-off. Ground crews toiled as nobly as ever, air crews took scant rest between raids. They had the moral fillip of knowing that this was the first grand assault from our side in which such raids had been employed. Already they had proved what they could do in defence, but now was the opportunity to attack. As they flew the air crews gazed down at countless flashes of gunfire. Little white puffs of exploding shells spattered the desert air below them like "handfuls of flung rice." By midday pilots were already reporting areas of broken trucks, many ablaze, some burnt out and still smouldering.

Similarly that night the Wellington crews could see battles being fought beneath them in the moonlight, tiny silent movements, shadowy plumes of dust, sparkles of shellfire. Somewhere down there the infantry had widened the gaps and the tanks and guns were passing through, roaring down tracks marked by the half-glow of shuttered lamps. Bombs started many fires ahead of them, one at Rahman by the coast burning fiercely for five hours. It was dawn before the last Wellington drew away; by then the tanks and guns were all west of the first line of enemy minefields—he had in all three defence lines, one behind the other—and the infantry solidly held the bridge in the rear.

By daylight on October 25th, the ground position was that the 8th Army held a bulge in the north of the Alamein line a mile or two away from the coast. This bulge was nicknamed "the fist." Away to the south the attack had been sufficient to pin down the enemy armour opposing it, but the commanding Himeimat Ridge had not been taken. From "the fist" down to Qattara the line ran more or less straight, due north to south.

That day, the second of the land battle, the Luftwaffe pulled itself together and made a challenge which cost seven Messerschmitts definitely destroyed and many more probably destroyed or damaged: we lost one Kittyhawk. The challenge was sufficient to switch a lot of the light-bombing strength back on Daba and Fuka, but insufficient to cut down the bombing programme by a single sortie. Insufficient, too, to curb the Beaufighters which were ranging the back areas, shooting up supplies. Seven of them found a merchant ship and a destroyer which had nearly succeeded in reaching Tobruk. They lay only a mile off shore and a few miles west of the port. The Beaufighters' cannon attack, though it left both vessels with smoke drifting upwards, was not strong enough to sink them. Having shot down two Ju.88s and a Dornier flying boat, the Beaufighters hurried back to their base to lead out a striking-force of bombers and torpedo-carriers. The torpedoes missed, but a bomb from a Bisley blew the merchant ship to pieces and she sank in a few minutes. One of

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the Beaufighters shot down two Italian CR.42s, obsolete fighters the very presence of which indicated the straits into which the airfield bombing had forced the enemy air forces.

Shortly afterwards another force of eight Beaufighters cut into the enemy air-supply route from Crete to the battle. They found some 35 Ju.52 transport aircraft escorted by six twin-engine Me.110 fighters a few miles north of Tobruk. Some of the Beaufighters held off the Messerschmitts, shooting one of them down, while the remainder went for the Junkers. Although in the end they claimed only four of these big aircraft as definitely destroyed, that is probably a considerable under-estimate; the outline of wings was seen sinking beneath the water, columns of smoke were seen rising from it.

The battle on the ground was taking a definite shape by October 26th. "The fist" had wedged its way more firmly into the enemy's face, broadening out to the north and south. Our troops held the whole of Miteiriya Ridge, and the tanks were embattled in strong defensive positions against which the enemy was permitted to wear out his armour. In the northern sector alone he had already lost some 70 tanks, one armoured division being reduced after only 24 hours' fighting to about five runners. Another had been brought up from the south by a night march and was put into battle together with the 90th Light, veterans of the Afrika Korps. As they moved by night they were bombed, as they tried to form up by day they were bombed. In all there were nine full-scale light-bomber raids during the day, from which not one bomber was lost, while numerous formations of fighter-bombers slipped down to the south and wiped out four tanks and two armoured cars.

High over the battle swept the Spitfires, still firmly holding their front line over Daba; the Kittyhawks, darting far past that line, fired several petrol convoys on the coast road around Sidi Barrani. The Luftwaffe was still trying, still losing. During the day 17 enemy aircraft were shot down by our fighters, one by a Boston bomber and one by small-arms fire from the ground.

The desert does not burn. Every fire on the ground meant an enemy truck, or a supply dump, or an aircraft destroyed.

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IV. KNOCK-OUT

12—The Water Gates Slam, the Fist Drives Home

BUT the greatness of that day, October 26th, lay out to sea off the Tobruk coast. The enemy was badly short of many things, thanks to weeks of air attack on his supply lines, but particularly he lacked petrol. A great deal depended on a convoy of two merchant ships, one of them carrying petrol, and a tanker which reconnaissance aircraft had discovered steaming south from Crete escorted by four destroyers. Four separate air striking-forces were sent out in succession to attack this convoy, guided by an exemplary series of reconnaissance flights. The first force of Beauforts and Bisleys escorted by Beaufighters took off in the early afternoon and was over the convoy about 18 miles north of Tobruk. The air crews were told that the destroyers were unimportant but the supply ships had to be sunk.

The attack was carried out at low level, the Beauforts skimming in from several directions to launch torpedoes, while the Bisleys swept at mast height over the ships, spewing out their bombs. One Bisley pilot collided with the mast of the tanker and the aircraft plunged into the sea. In all, six aircraft were lost from this first striking-force, but not before they had accomplished their purpose. The tanker was struck at almost precisely the same moment by four bomb hits on her stern and a torpedo in her hull. She exploded in a great sheet of flame. Her complete bridge was flung so high into the air that one airman took it to be an enemy fighter and shouted to the rear gunner to "have a crack at it." Of the two other supply ships, one had possibly been hit by a torpedo, the other was smoking. The crews had no time to observe any other results in detail. They were flying through a desperate barrage of shellfire from all four destroyers and from the supply ships themselves.

The second striking-force of Beauforts and Beaufighters was unfortunate in not finding the convoy. The Beauforts consoled themselves by attacking a long barge near the coast. The Beaufighters destroyed two and damaged the rest of five Heinkel bombers for the loss of one of their own number

There was now some anxiety about this convoy. Already the afternoon was shortening towards an autumn dusk. The tanker had gone, but what of the other two ships? There remained a chance that they might make Tobruk to pump fuel into the German tanks. Towards tea-time a large force of U.S.A.A.F. bombers was sent against the ships. They scored two hits and four near misses on one of them, but were unable to tell whether it had actually been sunk.

At dusk, therefore, three torpedo Wellingtons were borrowed from the night force. Through the failing light they could see the larger of the two merchant ships just outside the mouth of Tobruk harbour itself. Documents which were later captured said that both Rommel and Kesselring, his air commander, were standing on the twilit cliffs by Tobruk watching this last ship make a bid to bring in the petrol, for every gallon of which they had ten uses. If that is true, they saw the three Wellingtons run up in a perfect torpedo attack. Several of the torpedoes struck the vessel, which exploded with force, flinging debris high into the air and resolving into a tall column of oily black smoke. One Wellington, hit, was last seen making for land. Another force which came at night found only the original tanker, blazing from bows to stern and periodically belching explosions.

Our air power had destroyed that convoy, ship by ship, the last while there was still daylight, with night bombers within easy range of the enemy's fighter airfields and, it may be, in full view of the

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Air power is at its zenith. It strikes in the air, over the sea, behind the lines, in the battle area. The German armour disintegrates, retreat becomes rout. An army is broken and an air force destroyed.

enemy army and air commanders. The captured documents do not report what comment Rommel made to Kesselring.

Army formations in the desert "fist" which had watched the light bombing only a few hundred yards in front of them that day signalled to the air forces in the evening, "Good show. Keep it up." Next day there was need to do so, for all the available German and Italian tanks were gathered together in an attempt to deliver five counter-attacks. Each of the five attempts to concentrate received the force of two big bombing raids, scattering the tanks and trucks into the best form of cover that exists in the desert—dispersal. What smaller attacks could be launched wasted themselves vainly on the guns of our own tanks and artillery.

October 28th was probably the day that decided the victory, even though the battle was fought furiously for several days after that. During the morning the airfields were somewhat idle for lack of good bombing targets. The Kittybombers made a number of sallies at Daba landing grounds. To commemorate the second anniversary of the Italian attack on Greece, a fighter squadron of the Royal Hellenic Air Force strafed what was thought to be an Italian desert headquarters. The bomber crews, however, stretched their legs a little, lingered for the first time over lunch in the mess. But in the early afternoon everything changed. The whole of the Afrika Korps, what remained of it, was trying to form up for a final full-scale counter-attack against "the fist." It should be appreciated that, in conditions of bombing, no armoured force can launch a big attack until it has first collected its units from dispersal and arrayed them for battle.

At once on all the light-bomber airfields field telephones rang, briefing tents were crowded, air crews bundled their flying gear, maps, parachutes into trucks which wallowed off through the dust to the dispersed aircraft. Propellers were already starting, wheels taxying across landing grounds, the first formations taking off in line astern. From the neighbouring landing grounds came the Kittyhawks, twisting and weaving in the bright sunlight; from yet others the Spitfires, reaching for the higher air.

Within the space of the next two and a half hours they carried out seven full-size bombing raids on the Afrika Korps. They dropped 80 tons of bombs in an area measuring some three miles by two. Pattern after pattern of bomb bursts spread from all directions across this area of concentration. Six times the German tank crews broke hastily and scattered across the desert; six times they re-formed. The seventh time they did not re-form. There was no counter-attack by the Afrika Korps. Not again did the enemy try to take the initiative.

That night, to the same accompaniment of our flares and bombs, the infantry attacked north from the extremity of "the fist." By morning they held a salient sticking out towards the coast, nicknamed "the thumb." It was particularly appropriate that when the bomber crews crowded to the briefing tent next morning to study the bomb line, they found it in the shape of a clenched fist with the thumb up, the cheerful and unofficial greeting which Tommies all over the world have adopted in reply to the pompous outraised arms of Nazi and Fascisti. Moreover "the thumb" pinned against the coast four battalions of Germans and Italians, whose only hope of escape lay through the closing corridor along the shore which was carefully bombed whenever it showed any signs of activity. The

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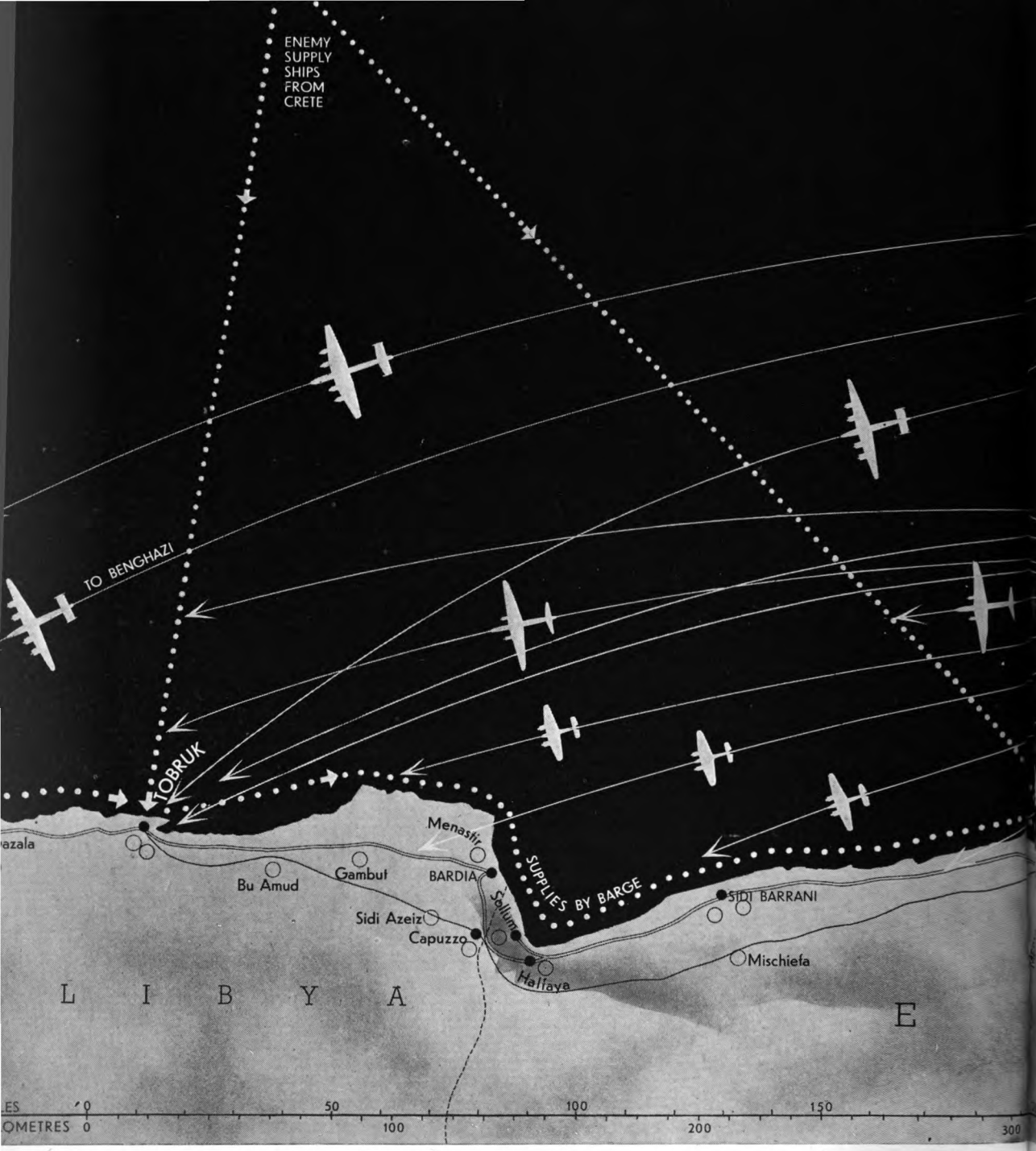

Air power strikes. As the decisive battle drew near, the R.A.F. turned on the enemy the full fury of that air power for onslaught by day on the battle area and on the landing grounds and supply routes immediately behind. Each night The heavy bombers from Palestine slammed the distant back door at Benghazi. Behind this great effort. at so many points

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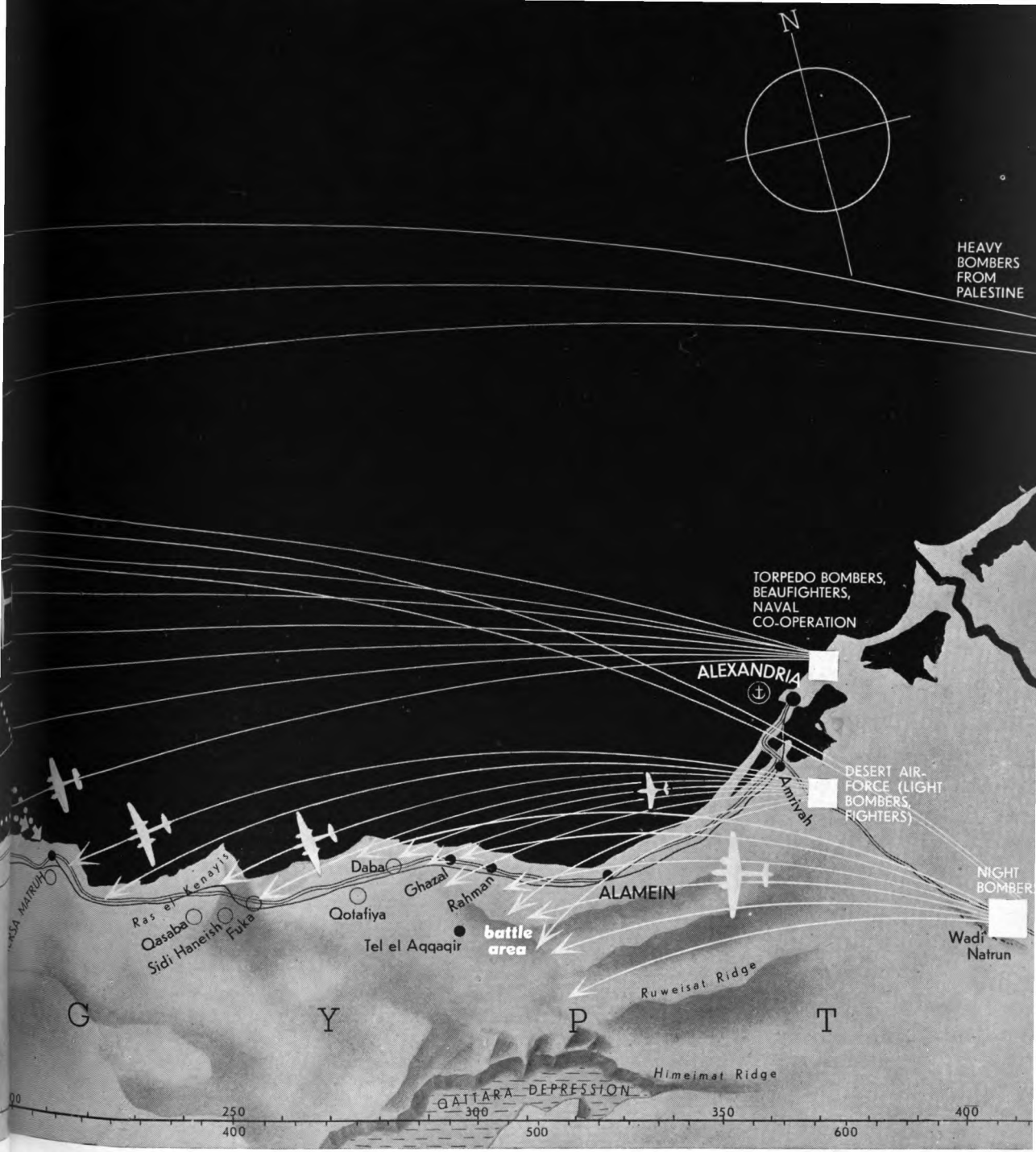

which they had striven and trained so long. The fighters and light bombers based on Amriyah began a terrific continuous bombers from Wadi Natrun took over. The Coastal Force from Alexandria sank every oil tanker that made for Tobruk. over a vast area of land and sea, lay a single strategy with a single purpose — the destruction of German power in Africa.

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imprisoned battalions did not escape, while the strength of the German armour was sapped still further in small actions by our own tanks and guns.

Air power did not play a great part in this phase of the immediate battle area. Bombing attacks continued, as did the fighter sweeps, but the targets were not sufficiently concentrated to make an all-out effort worth while. It was possible to hold the bombers a little in reserve and at the same time to increase interference with the enemy's supplies.

It had become even more desperately necessary for the enemy to get some ships into Cyrenaica. Despairing for the moment of Tobruk, he decided to try Benghazi. On October 28th a tanker and a supply ship were sent south from Italy. Torpedo Wellingtons found them off Zante Island. The first Wellington got a torpedo hit on the supply ship. The second, attacking half an hour later, could not find the supply ship at all but hit the stern of the tanker, which caught fire along her whole length. Reconnaissance aircraft, which swept widely over the area next morning, found only wreckage and oil. The first convoy failed.

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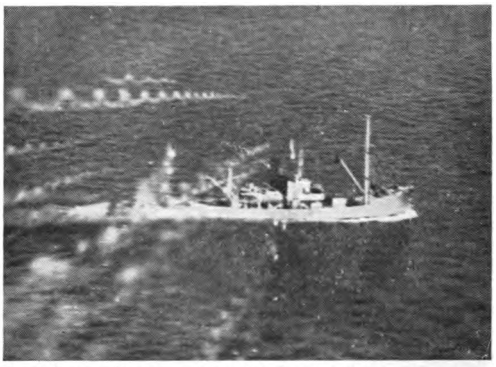

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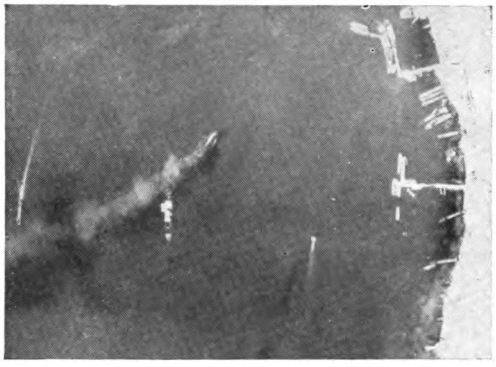

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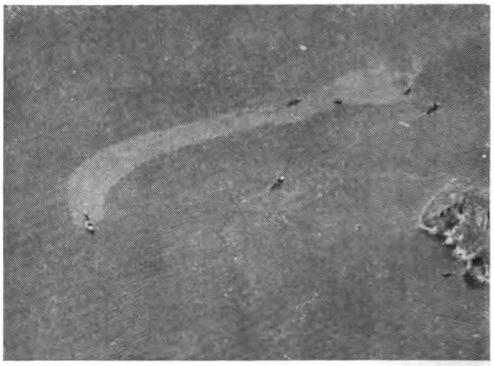

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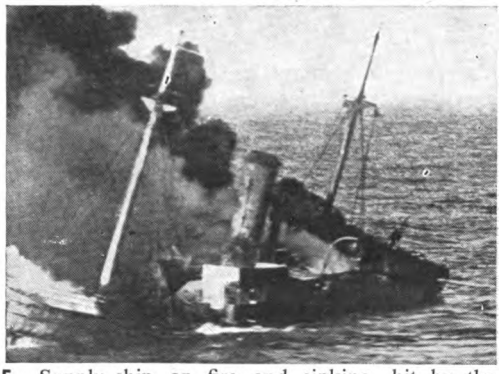

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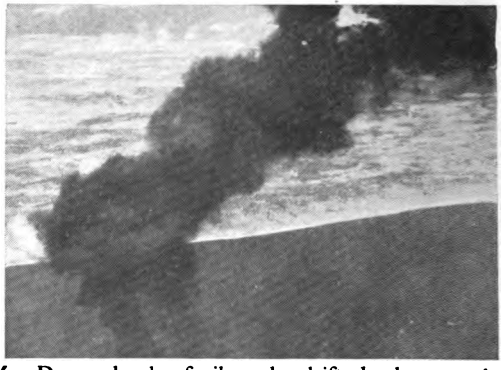

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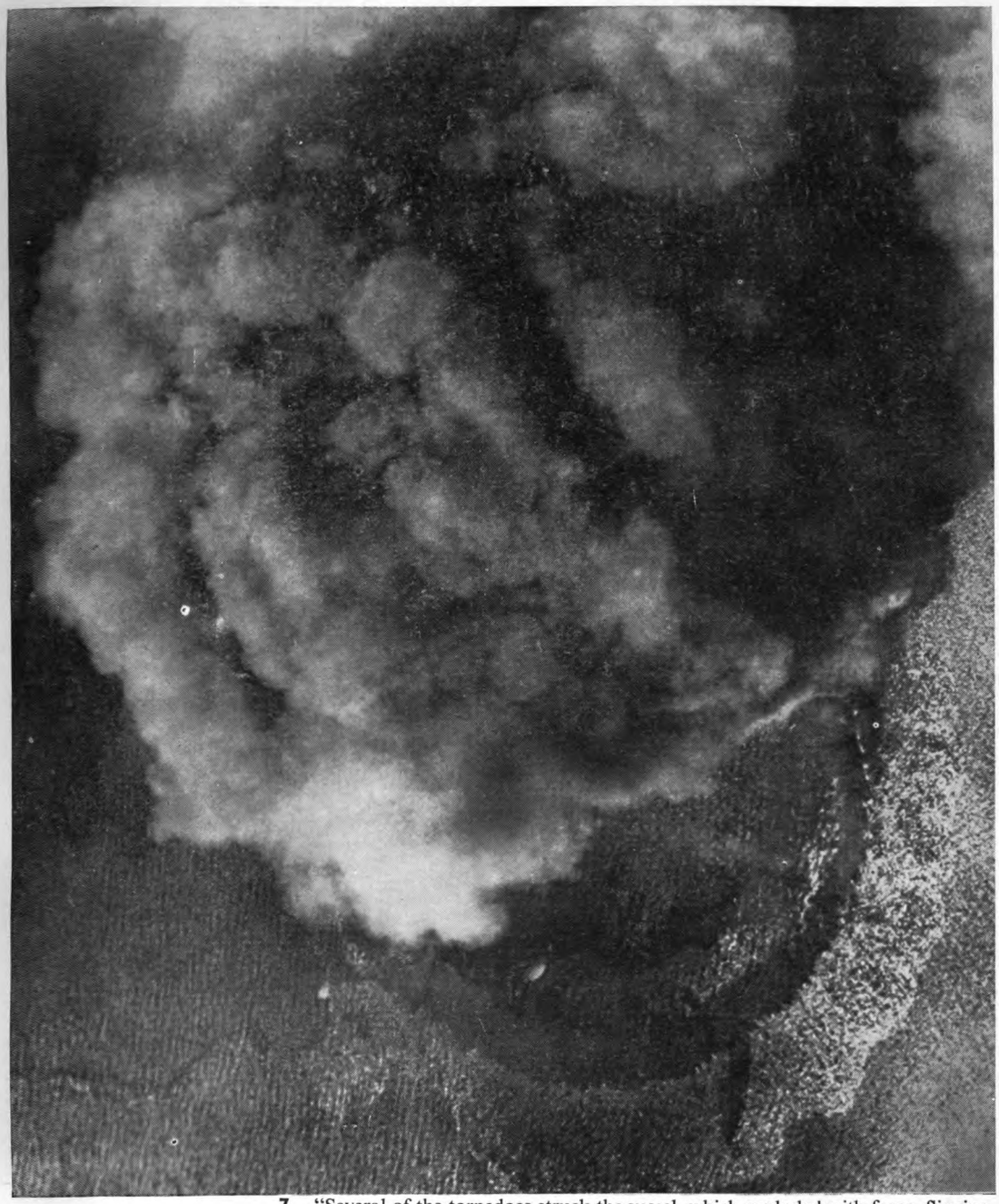

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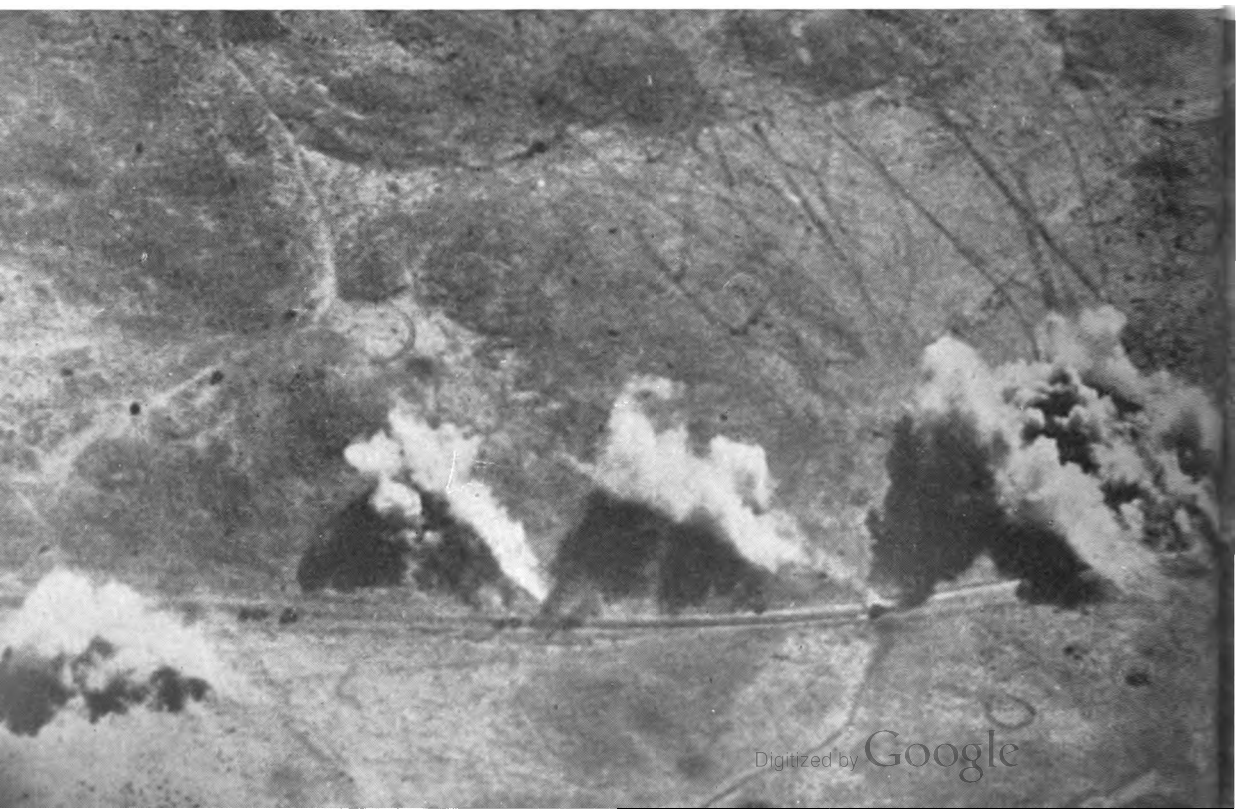

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what was going on in the south of the Alamein position. The troops down there were mostly Italian and they had been tricked of their lorries and petrol by the Germans, abandoned to inevitable capture. In a few days R.A.F. bombers would be searching for them, not to bomb them but to drop them water and food in order that they might not perish before they could be taken prisoner. A few of our fighters had been kept in hand to deal with any attempt the Luftwaffe might make to interfere. They did in fact try two Stuka raids, the first of which jettisoned and fled when it was intercepted; of the second, eight Stukas and two Messerschmitts were destroyed, and some 17 more at least crippled. But these were only diversions. The Luftwaffe had practically ceased to exist as a force of any consequence in the battle.

The main preoccupation was the road. By dusk whole lengths of it were blazing with fires sufficiently large and numerous to provide all the light the Wellingtons needed to keep up the attack at night. This was the night for which those bombers had been waiting. They called it "Bombers' Benefit." No longer might the enemy vehicles be scattered over hundreds of square miles of otherwise empty desert; they were concentrated just around the thin ribbon of the coast road lit by the torches of their own destruction. By the stretch of road that runs through Daba the Wellingtons started about 60 fresh fires. One pilot counted 30 burning furiously at the same time. The truck columns continued to drive westward throughout the night, hoping to traverse the area of fiercest attack under cover of darkness.

The road was so crowded that it reminded one pilot of the Brighton road on August Bank Holiday in days of peace. The bombers came down low to bomb, then lower still to open fire with machine guns. "As we came in to drop our first stick the vehicles careered madly off the road. It looked absolutely crazy. I saw one overturn as it went over the bank. We could see troops leaping out and running away like cockroaches. They were colliding and jumping head first into patches of scrub or any hole they could find." "Our first stick cracked right across the lorries at

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imprisoned battalions did not escape, while the strength of the German armour was sapped still further in small actions by our own tanks and guns.

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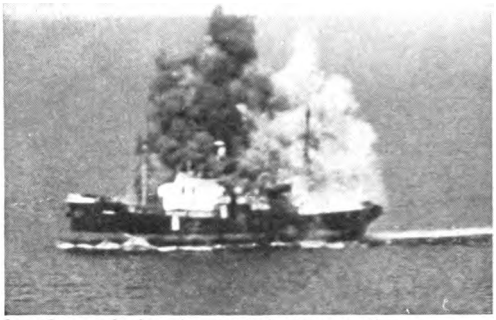

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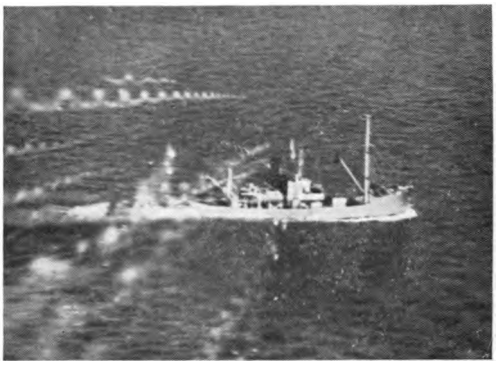

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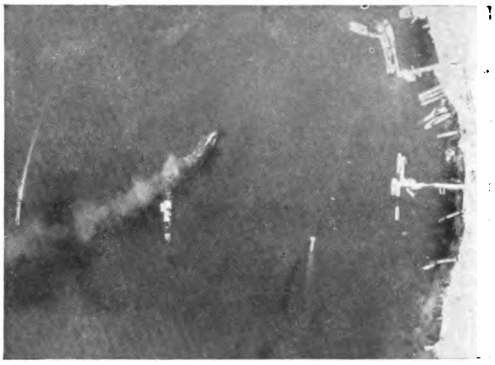

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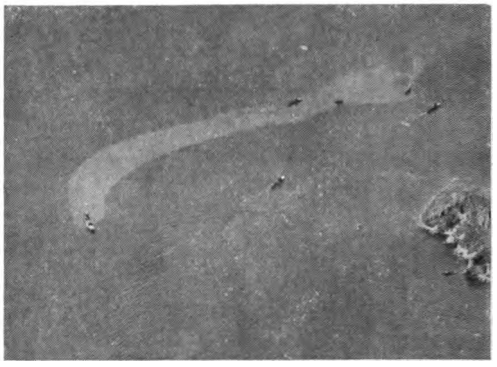

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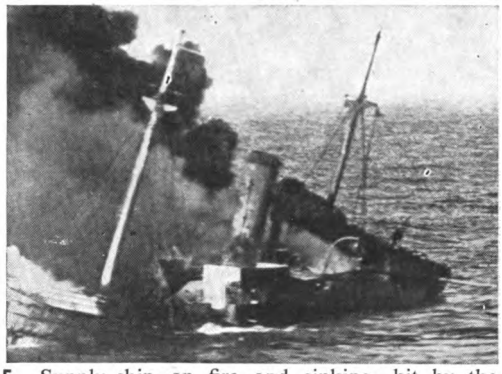

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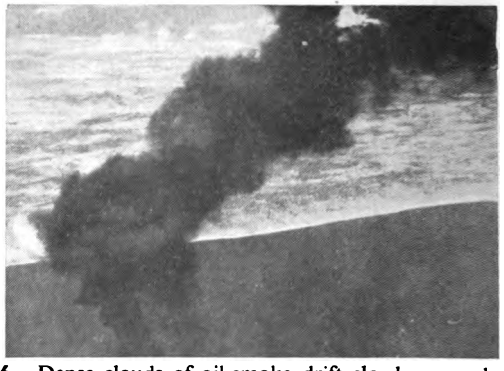

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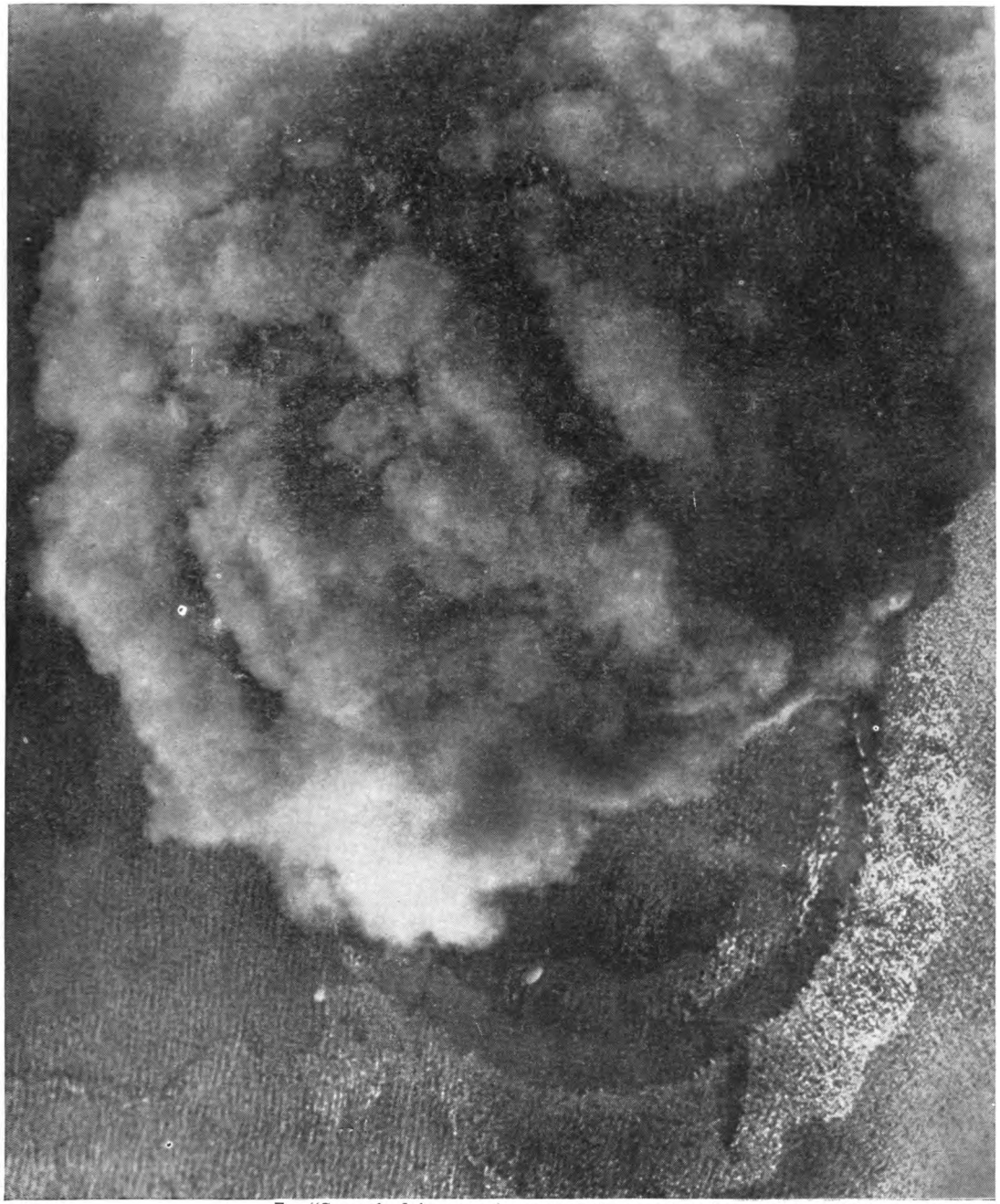

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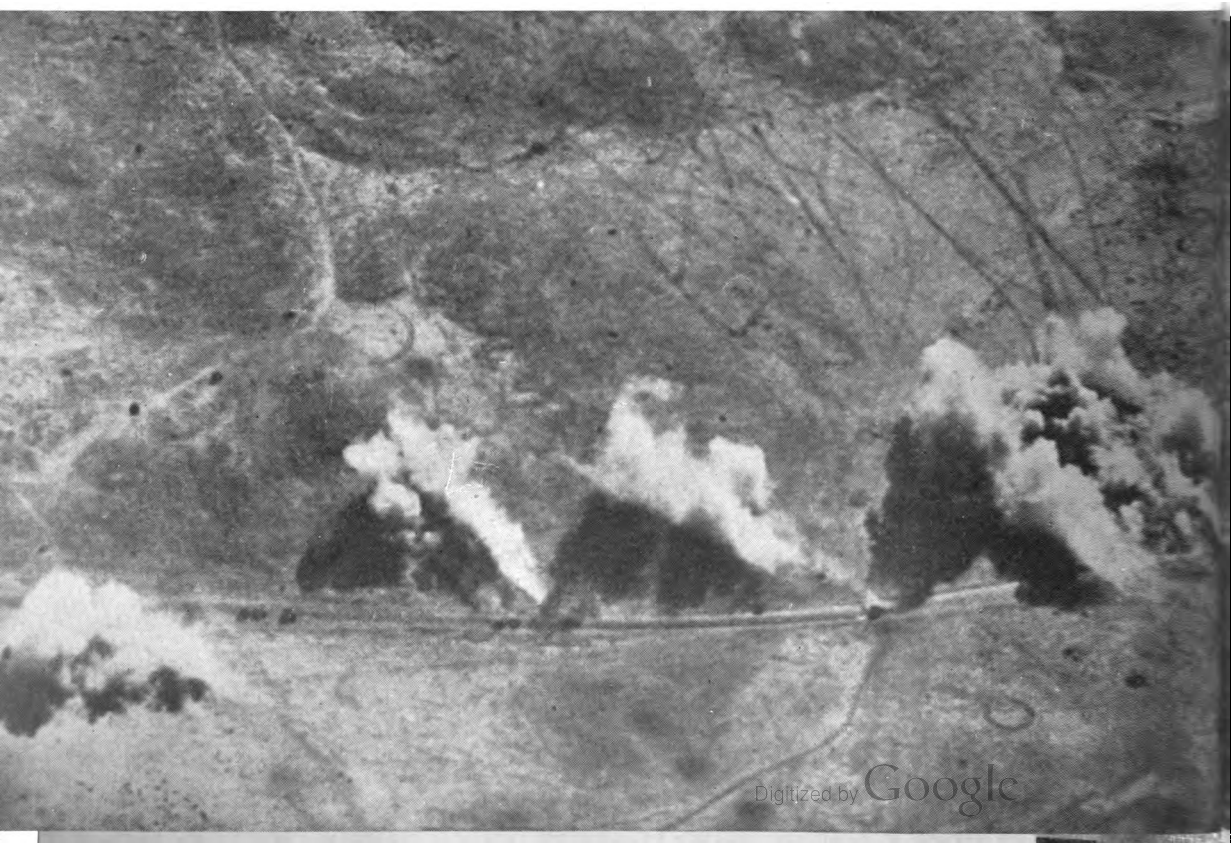

"As the defeated army turned on its tracks, the whole weight of air attack was sailed down the road, spilling bombs on vehicles and men," said one pilot: " I never

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what was going on in the south of the Alamein position. The troops down there were mostly Italian and they had been tricked of their lorries and petrol by the Germans, abandoned to inevitable capture. In a few days R.A.F. bombers would be searching for them, not to bomb them but to drop them water and food in order that they might not perish before they could be taken prisoner. A few of our fighters had been kept in hand to deal with any attempt the Luftwaffe might make to interfere. They did in fact try two Stuka raids, the first of which jettisoned and fled when it was intercepted; of the second, eight Stukas and two Messerschmitts were destroyed, and some 17 more at least crippled. But these were only diversions. The Luftwaffe had practically ceased to exist as a force of any consequence in the battle.

The main preoccupation was the road. By dusk whole lengths of it were blazing with fires sufficiently large and numerous to provide all the light the Wellingtons needed to keep up the attack at night. This was the night for which those bombers had been waiting. They called it "Bombers' Benefit." No longer might the enemy vehicles be scattered over hundreds of square miles of otherwise empty desert; they were concentrated just around the thin ribbon of the coast road lit by the torches of their own destruction. By the stretch of road that runs through Daba the Wellingtons started about 60 fresh fires. One pilot counted 30 burning furiously at the same time. The truck columns continued to drive westward throughout the night, hoping to traverse the area of fiercest attack under cover of darkness.

The road was so crowded that it reminded one pilot of the Brighton road on August Bank Holiday in days of peace. The bombers came down low to bomb, then lower still to open fire with machine guns. "As we came in to drop our first stick the vehicles careered madly off the road. It looked absolutely crazy. I saw one overturn as it went over the bank. We could see troops leaping out and running away like cockroaches. They were colliding and jumping head first into patches of scrub or any hole they could find." "Our first stick cracked right across the lorries at

switched from the battle area to the thin ribbon of road behind it. "Every bomber saw such a scene of destruction." This photograph was taken between Daba and Fuka.

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the right angle. We could see some of the lorries coming up in the air. . . . We went in low over a tented encampment and could see our tracer cutting through the canvas." Those two are typical of the stories with which the bomber pilots came back from this night of punishment.

It turned the retreat into a rout. Or rather, as the German radio put it next day, "Rommel resumed his freedom of movement." The only real freedom left to him was to move to the west, under unceasing bombardment, as far and as fast as his scant petrol stocks would permit, taking only the pick of his troops and abandoning the rest to the prisoner-of-war cage. All through that day, November 4th, the light bombers, fighter-bombers and fighters maintained the weight of their assault on the road, one fighter-bomber formation jettisoning the bombs to drive off and mutilate the only Stuka raid which the enemy attempted. At midday, General von Thoma, who had taken the place of General von Stumme, reported personally to Rommel that he was informed of large columns of British troops moving round his southern flank. Rommel, irritable and obviously shaken, declared that they could not be British, so von Thoma got into a tank to investigate for himself.

By evening, the famous Press communiqué had been issued to the world: "The Axis forces in the Western Desert, after 12 days and nights of ceaseless attacks by our land and air forces, are now in full retreat. Their disordered columns are being relentlessly attacked by our land forces and by the Allied air forces, by day and night. General von Stumme, senior general, who is said to have been in command during Rommel's absence in Germany, is known to have been killed. So far we have captured 9,000 prisoners, including General Ritter von Thoma, commander of the Afrika Korps, and a number of other senior German and Italian officers. It is known that the enemy losses in killed and wounded have been exceptionally high. . . ."

"Like the Epsom Road on Derby Day." The Eighth Army and the ground convoys of the R.A.F. squadrons move in pursuit of Rommel, an endless stream of vehicles nose-to-tail along the coastal road. It was a wonderful target for the Luftwaffe, but the Luftwaffe had been shot from the skies.

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13—The Fury of Pursuit

WHAT A ROAD it was! If the retreating Germans and Italians had crowded the road through Daba like the Brighton road on August Bank Holiday, the advancing Allies packed it like the Epsom road on Derby Day. It is the width of only two vehicles, and at the best of times its edges tend to crumble. From Daba westwards the enemy had laid millions of land mines all the way along the edges of the road and the bordering desert, so that the traffic had to stick to the tarmac, though even so a truck went up every now and then with a roar and a column of black smoke. The tarmac itself was pitted with bomb holes, blocked here and there with burnt and twisted vehicles, flooded in the dips and hollows with the remnants of the October rains.

On to this road wound the ground convoys of the squadrons, taking their turn with the seemingly endless trails of army lorries. No matter where one stood, the road was packed nose to tail with traffic, mile after mile of it from horizon to horizon. Military policemen sweated at the task of pulling back the impatient spirits who tried to slip past along one side or the other, risking the mines. Small parties of sappers moved slowly along the roadside, prodding with their bayonets to fork up the land-mines which had been revealed by the detector apparatus they swung ahead of them on a long pole. Sometimes the traffic rumbled steadily forward for an hour or more. Sometimes it crept a few yards and halted while somebody miles ahead disentangled a jam, and the drivers stared curiously at the sign-boards in German and Italian which were perched at whimsical angles on the banks.

What a terrible road it was! It took one R.A.F. convoy all one day from dawn to dusk to travel 35 miles. It was probably the best bombing target that has ever been offered to the Luftwaffe—and not a single enemy aircraft came. A score of Stukas could have wrought some real damage on that road, a flight of strafing Messerschmitts could have fired dozens of lorries, killed hundreds of men. But there were no Stukas or Messerschmitts left in the sky; only Spitfires, Kittyhawks, Warhawks and Hurricanes. At night the columns pulled gingerly off the mined edges of the road to leaguer. A few Junkers or Heinkels could have plunged whole camps into disorder; but there were no Junkers or Heinkels, only Wellingtons and Albacores rumbling steadily westwards to pound at the tail of the retreating enemy.

What a sight was Daba, that had been so unmercifully bombed! Along the road itself and for miles on either side stretched hundreds of wrecked vehicles caught by the bomb patterns. The desert was scattered over with the litter of personal junk, torn papers, dirty clothing, water-bottles, kitbags. Here and there small parties of men were burying the corpses the enemy had abandoned, setting up those little graveyards of wooden crosses in the sand.

At Daba there was two-way traffic—the Allies advancing, the enemy prisoners trailing back. The prisoners seemed to be everywhere—thousands and thousands of unkempt Germans and Italians past any emotion save fatigue. Some of them were marshalled into big wire cages where they sat patiently on the sand without interest in their fate. Others had already been bundled into trucks and sent off down the road to Alexandria, one British soldier perched at the back of each crowded lorry more for form's sake than anything else, for these men were not going to escape.

To what haven indeed could they escape? No prisoner could escape half so fast as Rommel was running. Many of them patched up their own trucks and started to drive themselves back to Alexandria without any guards at all—eastwards, anywhere out of the bombing. They stared incuriously at the streams of advancing Allies, although one might lean sorrowfully from his truck now and then to salute a freshly-dug cemetery with German names on the wood. There was never a greater testimony to the power of bombing than at Daba, the testimony of these men who had been deprived of sleep and rest for a fortnight.

When the first few ground-gunners of the

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"What a sight was Daba !" On the landing grounds were 50 aircraft, smashed by the bombardment before the battle. Some arriving squadrons were able to start their engines. Stacked against the railway track (*below, right*) were a further 39 wrecked

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were shattered to nothingness, some lay twisted on their backs, wheels in the air, some were so little damaged that the aircraft, most of them Messerschmitts. These, which the Germans had had time to move, were the result of the "weather blitz."

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R.A.F. Regiment took over the Daba landing grounds to prepare them for the squadrons, there were still between two and three hundred Germans and Italians wandering over them, asking to be made prisoner; a great nuisance the gunners found them, urging them at first to run off and find somebody less busy to capture them, but consenting at last to round them up and march them off to join the stream on the road.

The landing grounds at Daba, of which there are three, were yet another testimony to our air power. Stacked against the railway track near the landing ground which had received most of the "weather blitz" of October 9th, were 39 wrecked aircraft, most of them Messerschmitts, together with a great heap of twisted metal. It would seem that here was the result of the "weather blitz," all that the Germans had had time to cart away from the landing ground itself and dump by the railway in order that it might be removed for salvage. On the landing ground were the results of those preliminary days and nights of air bombardment before the battle—some 50 aircraft in various states of disrepair. Some were shattered to nothingness, some lay twisted on their backs, their wheels sticking up into the air, some, including an Me.109 G, were very little damaged and the arriving squadrons were able to start their engines.

By November 7th the Spitfires and Kittyhawks were already flying from Daba. They encountered the first attempts of the Luftwaffe to take again to the air. By the end of the day they had shot down three Messerschmitts and three Stukas. They had also intercepted a formation of five Ju.52 transport aircraft striving desperately to rush petrol supplies over by air from Crete. They destroyed all of them. They burned angrily on the ground.

The chief functions of air power now and throughout the advance to Tripoli were two: to prevent reinforcements of men or supplies

A broken and disordered army in full flight. Part of a famous reconnaissance picture of Halfaya Pass and the kinds push and jostle to the West. In the Pass itself (not seen in the picture) and twice on the way to Sollum, road

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reaching the enemy from the Continent of Europe; to attack without cease the retreating enemy army in Africa. The squadrons had also to maintain that complete air superiority which they had won, but the task was not to be so difficult as before; the enemy air forces had been so completely beaten that they were not again to make any serious challenge for command of the skies.

The task of intercepting supplies and reinforcements which came by sea fell to the medium and heavy bombers. With the advance, the targets fled farther and farther to the west, at first to Benghazi then to Tripoli, then at last to Tunisia. For, as if the victory of Alamein had been the signal for the Allies to attack everywhere—"the end of the beginning"—British and American forces had already landed farther west along the North African coast, and were advancing towards Tunisia.

The pilots of the desert force crowded nightly to the few radio sets for news of this landing and its success. Heartily they cheered the success, with an inward hope that, if it were to be a race for Tripoli, they who had lived so long in the desert, and tried so hard, might be permitted to get there first. So they turned more vigorously still to the tedious job of getting the squadrons forward on the ground.

This job of getting the squadrons forward was the main preoccupation in carrying out the second task assigned to air power, to destroy as much as possible of the routed army where it fled. The light bombers struck a few blows at the bottlenecks of Sollum and Halfaya, and then they had to be left behind for a while and their role given to the fighter-bombers which use less petrol. Every gallon of petrol had to be brought forward somehow over the bare desert, every bomb, every bullet, every tin of bully-beef and, indeed, every mug of water, for the Germans had defiled all the wells behind them as they went. Most of it

coast-road round Sollum Bay, as the Afrika Korps passes over them for the last time. Thousands of vehicles of all blocks have piled men and machines into a seething, sweating mass. Here and there, run into the desert, a lorry burns.

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Caught by the storm of bombs, vehicles were scattered in ruin for miles on either side of the road.

had still to come by road, that crowded, painful coast road. But already all possible transport aircraft had been gathered from the African routes and already they were appearing in the desert, flying up the bombs, the petrol and, later, the water.

Continually the advance overtook small or large parties of the enemy, dumps of their abandoned weapons and stores, relics of their shattered transports. Sometimes it overtook our own pilots who, fighting ahead of everybody, had been shot down into the tail of Rommel's retreat.

Sergeant X, an Australian, was a fighter pilot of 21 years, taking part in this last great desert battle. In his Kittyhawk he formed part of an escort to a bombing raid of Bostons. They were jumped by a large number of Me.109s, two of which got on his tail. Cannon shells tore through his aircraft, wounding both his legs. The controls faded beneath his hands. He flung off his hood, started to jump and found himself entangled in the oxygen tube. When he had struggled free, he barely had time to pull the ripcord of his parachute before reaching the ground. His waterbottle and emergency rations had been torn from his equipment as he extricated himself from the aircraft.

He was well south in the desert, but he refused to consider his case as hopeless. He ripped pieces from his parachute to bind the wounds in his legs. Then he tried to stand upright. He could not stand. This pilot now lay far out in the desert behind the enemy lines, entirely without food or water, unable to walk. His one thought was the knowledge that the British advance had begun. If he could last out, he decided, there was a chance that the advance would overtake and save him.

He did more than last out. Unable to walk, he started to crawl home across the desert. He found that by using his left foot and both arms he could propel himself, slowly and laboriously it is true, but in the right direction.

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It was a trail of blood and iron, and it marked the end of German military ambition in the Middle East.

He crawled for four days and four nights, with frequent periods of rest when his muscles could do no more. In the early hours of the morning he crawled from one clump of desert flowers to another, sucking from each a tiny drop of dew to relieve his thirst. Sometimes he lay motionless on the sand, watching large beetles scurrying towards him. When they were within reach he lunged out and caught them with his hands. He cut off their heads and ate their bodies. In that way he did something to assuage his hunger. It was not pleasant, he said, but he was desperate.

On the fourth day he reached an old Arab tomb, where he had to rest. It afforded a tiny, grateful shadow from the sun. By cunningly arranging a few stones in the form of a hollow, he collected "quite a fair amount of dew to drink." But he could go no farther. His mind started to wander. He thought he was back in his squadron mess with all his friends around him. He thought that aircraft landed in the desert beside him and took off again without picking him up. By a great effort of control he banished these thoughts from his mind. But in his heart he had given up hope.

There in the shadow of the Arab tomb he was found on the fifth day by a British Bren-gun carrier out on patrol. He was still conscious, still able to thank his rescuers for the first drink of water he had taken in five days. They carried him back to hospital. He had lost four stone in weight. The palms of his hands were worn into sores where he had crawled across the desert, he was very weak. But he recovered and his health came back to him.

Like the other members of the Late Arrivals Club, he had beaten the desert. He could say truly that he had "succeeded in returning to his squadron, on foot or by other means, long after his Estimated Time of Arrival." It is never too late to come back.

Through dramas and heroism such as that the advance swept on. At night the medium

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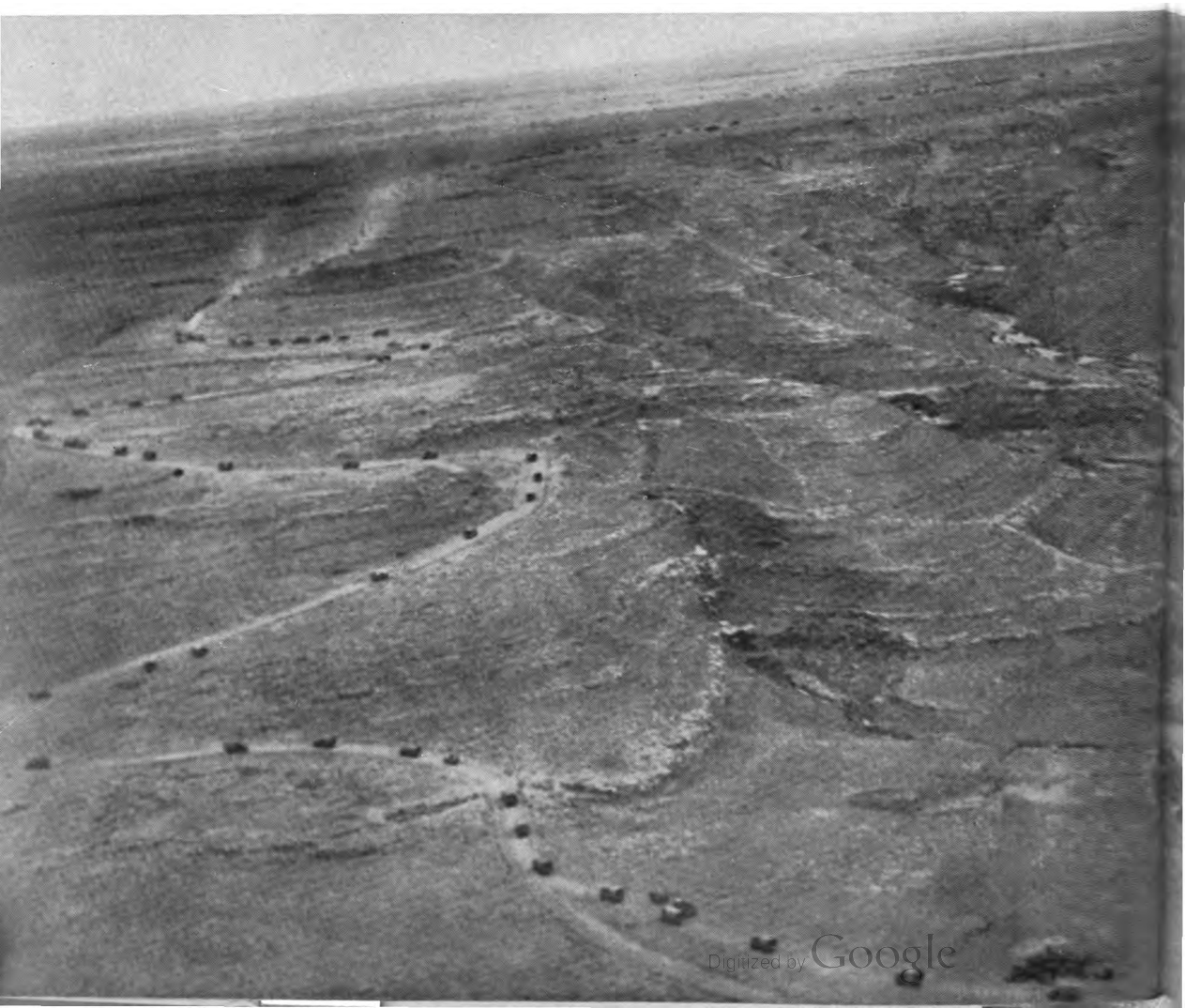
bombers, moving up into the desert more slowly behind the forward forces, continued to strike hard at the retreating army. On November 7th/8th they started more than 30 fires among the vehicles bunched at Sollum and Halfaya. Next day the fighter-bombers were at them, damaging 43 vehicles and a tank carrier in one attack alone. The following night the mediums and heavies were over Halfaya and Sollum again, starting some 50 fires.

In spite of the fact that the ground parties were leap-frogging forward every day, the bombers carried out double sorties each night, returning to the old base after the second sortie to pick up skeleton ground-crews and fly them forward to the new. During the whole of this advance the bomber formations carried forward all the vast quantities of petrol which they needed; and for the first four days, during which they advanced their bases 200 miles, they also carried all their own bombs. The last hop of the journey which they made on the ground carried them forward another 270 miles right into Libya itself.

Still the enemy fled to the west and still the air forces pursued him, striking every day and every night at his columns. Each day the squadrons moved farther westwards, tumbling all their gear into lorries and getting out again on to the crowded coast road, which grew worse rather than better, for whole stretches of it had been prac-

Egypt is free. The Eighth Army climbs Halfaya Pass and crosses the frontier—a stream reaching as far as the eye can see. "This time we shall not come back."



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tically blasted away by bombs or washed out by floods. Tents were abandoned and the men stretched themselves to sleep on the ground behind whatever shelter a truck would provide. Bully-beef became not so much the staple as the only diet, a mug of hot tea a thing to be dreamt of. The pilots flying back from patrol settled in circles to talk wistfully of tenderly-cooked meals. One man had seen a sheep out in the blue; if they could catch that there would be delicacies indeed. They did not catch it, but there was always bully.

Nobody cared, for this was an advance. In spite of the congested road, the striking-force was advancing more swiftly than ever before, more swiftly it seems than the Luftwaffe thought possible. For on November 11th, when the fighter squadrons had reached the big series of landing grounds south of Piccadilly—a point on the track crossing the desert where some nostalgic Englishman had built an "Eros" statue of petrol cans—the aircraft were flying forward far into Libya. The Luftwaffe chose that day to make its one big attempt to stop the advance of our armour, then over the border and moving against Sidi Azeiz.

The previous night the Luftwaffe had moved on to the Gambut landing grounds. Immediately at dawn the enemy put up their first bombing raid of 15 Stukas and six Messerschmitts. They clearly had not expected our fighters to be within range or the escort would have been much stronger. Kittyhawks on dawn patrol ran into the party and shot down eight Stukas, probably destroying four more. The remaining three fled with the Messerschmitts. As they approached Gambut to land, they found a squadron of Warhawks sitting over it which promptly shot down the remaining three Stukas. Not one German bomber got home from the first bombing raid. The Kittyhawks and Warhawks then came home to breakfast.

Encouraged by such a good start, they continued to shoot down enemy aircraft all day. By lunch-time they had shot down a further six Ju.52 transport aircraft, four Me.109s, a Ju.88 and a Fieseler Storch—a total for the day of 23 enemy aircraft certainly destroyed. After lunch the Luftwaffe gave it up and moved hastily back from Gambut. For the rest of the day our fighters strafed the packed coast road between Bardia and Tobruk.

Next day the advanced ground-parties of the squadrons, in a great convoy protected by armoured cars, swept across the frontier wire at Sheferzen into Libya again. As they came through, the trucks drew up, the drivers jumped out and cheered. A Hurricane flew over them and touched down on the landing ground at Sidi Azeiz. Its pilot was Group Captain Guy L. Carter, D.S.O., A.F.C., in command of the fighter force. In that same Hurricane he had been the last pilot to take off from Libya, when we were forced to withdraw the previous June. He had sworn then to be first in, with the same aircraft, when we advanced. He had to race one of his own squadrons to do it.

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14—Graveyard of the Giants

THE SQUADRONS found Libya much as they had left it, except that there were a lot more shattered enemy aircraft on the airfields and except that Tobruk, already battered, was now a shell. The enemy yielded that fortress without a fight. There was no fight left for him. He could only run.

Kittyhawks that reached the place found the tail-end of his forces hurrying out of the harbour in barges, at least one of which they sank. But Gambut was the same. Nothing in this world will ever change Gambut. The dust lay as thick as ever, the tracks as deeply rutted. The three airfields on the point at Gazala were just the same when they reached them on November 15th. Those on top of the hills at Martuba were just as muddy the following day. Derna on the other hand was rather different, for the landing ground was so criss-crossed with mines as to be unusable for many days to come. Still, the Martubas sufficed, together with the Gazalas, for a highly important task which now had to be done. The siege of Malta had to be lifted.

On November 16th a convoy sailed from Alexandria carrying to Malta those very necessities which had been lacking, and impossible of delivery, while the enemy held Libya. It sailed under a fighter umbrella which was raised from every newly-won airfield along the whole coast as far as the area of Derna. It reached Malta almost without incident and without the loss of a ship. Air power took it there. It was so easy—once we held the right airfields.

That was only the first of many convoys to sail for Malta. Speedily the whole island was restocked. At once that invaluable island struck back with greater vigour than ever at the enemy to the north and to the south. As Rommel was driven westwards, his sea supply-routes travelled ever westwards ahead of him. By the night of November 13th/14th the Wellingtons were already in range of Benghazi and the "mail run" had started all over again. Very shortly the only entry port was Tripoli. The vantage point from which to strike it was then, not the mainland of Africa, but the island of Malta. Gradually, as the advance went to the west, more and more bombers, torpedo carriers and long-range fighters were transferred to the island of Malta. Already when the first convoy steamed into Valetta they were at work.

Here the air power of the Middle East began to link up with wider operations which are outside the scope of this story: but something must be said of them, if only to show one theatre of war merging into another. Under the threat of the Allied armies marching through Algeria, the Germans had thrown a swift bridgehead into Tunisia, using mainly the big airfield of El Aouina outside Tunis. On November 10th this airfield was attacked for the first time by Beaufighters from Malta. They made landfall just before dusk some 30 miles to the south, flying the rest at "nought feet" over land, skimming over trees, houses and cafés.

"The people did not seem to have any fear of us," said Squadron Leader A. Watson, D.S.O., D.F.C., who led the formation; "there were plenty of lights showing and people sitting outside the cafés having drinks. Some of them did not even leave their chairs on the pavements but just steadied their drinks on the nearest table and stared up at us. When we got to El Aouina there must have been about 120 aircraft standing on the airfield, dispersed as best they could, but not much room for it. What a party ! All of us got several of the aircraft on the ground. As I myself flew across I saw an enormous aircraft standing there—we found out afterwards it was one of the Merseburg 6-engine gliders. I was so fascinated by this damned big aircraft that I almost forgot to pull up over it in time. Then we had a quick look at the fires we had started and came home." In all they certainly destroyed 20 aircraft, including the Merseburg glider, damaging half a dozen more.

But that was only the start. From then onwards a revivified Malta turned to a fury of assault. El Aouina was raided by night and by day, its hangars knocked into twisted caricatures, its aircraft and workshops fired time after time. Farther to the east the Malta bombers attacked

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They left the Luftwaffe behind them. On the landing grounds at Sollum, at Gambut, at Martuba, Derna, Benina, Magrun, Agedabia, El Agheila and through Tripoli to Castel Benito, lay the remains of a scattered and broken air force, abandoned in the haste and disorder of the retreat. This photograph was taken at Derna.

Tripoli, to the north they ranged over the airfields and ports of Sicily and southern Italy.

Beaufighters from Malta were particularly active in intercepting the air supply-route, which was attempting to pump at least a little petrol to Rommel or to carry in a few reinforcements. Seven of them, for instance, on November 12th found six S.82s, big Italian transport aircraft, crowded with troops. The Italians fled towards their fortified island of Pantellaria, while the Beaufighters picked them off one by one. The last fell into the sea in flames just short of the island. Very soon the Beaufighters were shooting down troop and petrol carriers on this route practically every day. Once they destroyed what was believed to be the biggest aircraft yet shot down in the war, a B.V.222 flying-boat with six engines, which at first glance the Beaufighter pilot

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last battle of supplies. With the doors from the sea closed to Rommel sought to bring his vital supplies in the giant Ju. 52s. were shot down into the sea and on the land, and Kittyhawks over the airfields day after day. When the Army came up found Rommel's supply service a litter of burnt-out wrecks.

took to be a ship of about 3,000 tons coming over the horizon.

During the month of November alone, the Beaufighters of Malta shot down 37 aircraft, mostly troop carriers, in air combat, and probably destroyed or damaged another 60. On the ground they knocked out or crippled 50 more. One of these squadrons was led by Wing Commander J. K. Buchanan, D.S.O., D.F.C., who was previously a bomber pilot, in which capacity he had taken part in 230 bombing raids over 13 countries. When he went to Malta to take command of a long-range fighter squadron he had flown fighter aircraft for only 10 hours. In his first five fighter sorties he destroyed five enemy aircraft.

These attacks on the air supply-route were so seriously regarded by the enemy that he began to put big fighter umbrellas over his transport aircraft. Malta responded by flying Spitfires on

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top of the Beaufighters and the result was the same. On December 11th such a formation met 32 Ju.52s, escorted by four twin-engine Me.110s and a Ju.88. The transport aircraft were flying only about 100 feet above the sea, south of Lampedusa island, with their escort some 500 feet above them. The Spitfires went for the escort, shooting it all down. Three of the Messerschmitts fell into the sea in swift balls of flame, the fourth floated on like a parachute flare and then dropped. The Ju.88 spun into the sea. Then the Spitfire leader was heard calling over his radio, "Let's go for the big stuff." They dived on the Ju.52s, and shot down two of them; the Beaufighters came in afterwards and shot down six more.

Back on the African mainland the Wellingtons by night and the American Liberators by dusk were taking their last opportunity to pound Benghazi before it fell into our hands. They hit

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R.A.F. Regiment took over the Daba landing grounds to prepare them for the squadrons, there were still between two and three hundred Germans and Italians wandering over them, asking to be made prisoner; a great nuisance the gunners found them, urging them at first to run off and find somebody less busy to capture them, but consenting at last to round them up and march them off to join the stream on the road.

The landing grounds at Daba, of which there are three, were yet another testimony to our air power. Stacked against the railway track near the landing ground which had received most of the "weather blitz" of October 9th, were 39 wrecked aircraft, most of them Messerschmitts, together with a great heap of twisted metal. It would seem that here was the result of the "weather blitz," all that the Germans had had time to cart away from the landing ground itself and dump by the railway in order that it might be removed for salvage. On the landing ground were the results of those preliminary days and nights of air bombardment before the battle—some 50 aircraft in various states of disrepair. Some were shattered to nothingness, some lay twisted on their backs, their wheels sticking up into the air, some, including an Me.109 G, were very little damaged and the arriving squadrons were able to start their engines.

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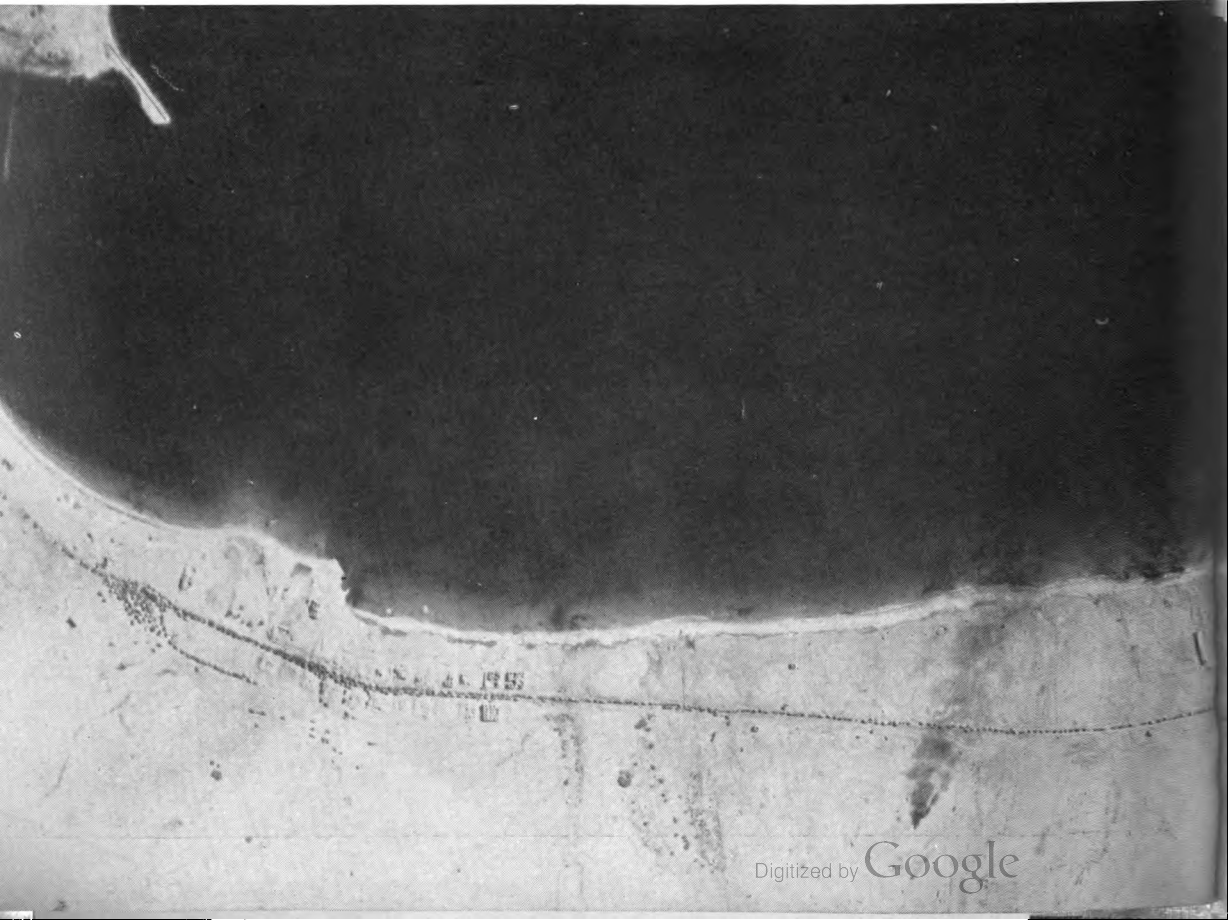
The chief functions of air power now and throughout the advance to Tripoli were two: to prevent reinforcements of men or supplies

A broken and disordered army in full flight. Part of a famous reconnaissance picture of Halfaya Pass and the kinds push and jostle to the West. In the Pass itself (not seen in the picture) and twice on the way to Sollum, road



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The task of intercepting supplies and reinforcements which came by sea fell to the medium and heavy bombers. With the advance, the targets fled farther and farther to the west, at first to Benghazi then to Tripoli, then at last to Tunisia. For, as if the victory of Alamein had been the signal for the Allies to attack everywhere—"the end of the beginning"—British and American forces had already landed farther west along the North African coast, and were advancing towards Tunisia.

The pilots of the desert force crowded nightly to the few radio sets for news of this landing and its success. Heartily they cheered the success, with an inward hope that, if it were to be a race for Tripoli, they who had lived so long in the desert, and tried so hard, might be permitted to get there first. So they turned more vigorously still to the tedious job of getting the squadrons forward on the ground.

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Caught by the storm of bombs, vehicles were scattered in ruin for miles on either side of the road.

had still to come by road, that crowded, painful coast road. But already all possible transport aircraft had been gathered from the African routes and already they were appearing in the desert, flying up the bombs, the petrol and, later, the water.

Continually the advance overtook small or large parties of the enemy, dumps of their abandoned weapons and stores, relics of their shattered transports. Sometimes it overtook our own pilots who, fighting ahead of everybody, had been shot down into the tail of Rommel's retreat.

Sergeant X, an Australian, was a fighter pilot of 21 years, taking part in this last great desert battle. In his Kittyhawk he formed part of an escort to a bombing raid of Bostons. They were jumped by a large number of Me.109s, two of which got on his tail. Cannon shells tore through his aircraft, wounding both his legs. The controls faded beneath his hands. He flung off his hood, started to jump and found himself entangled in the oxygen tube. When he had struggled free, he barely had time to pull the ripcord of his parachute before reaching the ground. His waterbottle and emergency rations had been torn from his equipment as he extricated himself from the aircraft.

He was well south in the desert, but he refused to consider his case as hopeless. He ripped pieces from his parachute to bind the wounds in his legs. Then he tried to stand upright. He could not stand. This pilot now lay far out in the desert behind the enemy lines, entirely without food or water, unable to walk. His one thought was the knowledge that the British advance had begun. If he could last out, he decided, there was a chance that the advance would overtake and save him.

He did more than last out. Unable to walk, he started to crawl home across the desert. He found that by using his left foot and both arms he could propel himself, slowly and laboriously it is true, but in the right direction.

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UNIVERSITY OF MICHIGAN

It was a trail of blood and iron, and it marked the end of German military ambition in the Middle East.

He crawled for four days and four nights, with frequent periods of rest when his muscles could do no more. In the early hours of the morning he crawled from one clump of desert flowers to another, sucking from each a tiny drop of dew to relieve his thirst. Sometimes he lay motionless on the sand, watching large beetles scurrying towards him. When they were within reach he lunged out and caught them with his hands. He cut off their heads and ate their bodies. In that way he did something to assuage his hunger. It was not pleasant, he said, but he was desperate.

On the fourth day he reached an old Arab tomb, where he had to rest. It afforded a tiny, grateful shadow from the sun. By cunningly arranging a few stones in the form of a hollow, he collected "quite a fair amount of dew to drink." But he could go no farther. His mind started to wander. He thought he was back in his squadron mess with all his friends around him. He thought that aircraft landed in the desert beside him and took off again without picking him up. By a great effort of control he banished these thoughts from his mind. But in his heart he had given up hope.

There in the shadow of the Arab tomb he was found on the fifth day by a British Bren-gun carrier out on patrol. He was still conscious, still able to thank his rescuers for the first drink of water he had taken in five days. They carried him back to hospital. He had lost four stone in weight. The palms of his hands were worn into sores where he had crawled across the desert, he was very weak. But he recovered and his health came back to him.

Like the other members of the Late Arrivals Club, he had beaten the desert. He could say truly that he had "succeeded in returning to his squadron, on foot or by other means, long after his Estimated Time of Arrival." It is never too late to come back.

Through dramas and heroism such as that the advance swept on. At night the medium

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bombers, moving up into the desert more slowly behind the forward forces, continued to strike hard at the retreating army. On November 7th/8th they started more than 30 fires among the vehicles bunched at Sollum and Halfaya. Next day the fighter-bombers were at them, damaging 43 vehicles and a tank carrier in one attack alone. The following night the mediums and heavies were over Halfaya and Sollum again, starting some 50 fires.

In spite of the fact that the ground parties were leap-frogging forward every day, the bombers carried out double sorties each night, returning to the old base after the second sortie to pick up skeleton ground-crews and fly them forward to the new. During the whole of this advance the bomber formations carried forward all the vast quantities of petrol which they needed; and for the first four days, during which they advanced their bases 200 miles, they also carried all their own bombs. The last hop of the journey which they made on the ground carried them forward another 270 miles right into Libya itself.

Still the enemy fled to the west and still the air forces pursued him, striking every day and every night at his columns. Each day the squadrons moved farther westwards, tumbling all their gear into lorries and getting out again on to the crowded coast road, which grew worse rather than better, for whole stretches of it had been prac-

Egypt is free. The Eighth Army climbs Halfaya Pass and crosses the frontier—a stream reaching as far as the eye can see. "This time we shall not come back."

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tically blasted away by bombs or washed out by floods. Tents were abandoned and the men stretched themselves to sleep on the ground behind whatever shelter a truck would provide. Bully-beef became not so much the staple as the only diet, a mug of hot tea a thing to be dreamt of. The pilots flying back from patrol settled in circles to talk wistfully of tenderly-cooked meals. One man had seen a sheep out in the blue; if they could catch that there would be delicacies indeed. They did not catch it, but there was always bully.

Nobody cared, for this was an advance. In spite of the congested road, the striking-force was advancing more swiftly than ever before, more swiftly it seems than the Luftwaffe thought possible. For on November 11th, when the fighter squadrons had reached the big series of landing grounds south of Piccadilly—a point on the track crossing the desert where some nostalgic Englishman had built an "Eros" statue of petrol cans—the aircraft were flying forward far into Libya. The Luftwaffe chose that day to make its one big attempt to stop the advance of our armour, then over the border and moving against Sidi Azeiz.

The previous night the Luftwaffe had moved on to the Gambut landing grounds. Immediately at dawn the enemy put up their first bombing raid of 15 Stukas and six Messerschmitts. They clearly had not expected our fighters to be within range or the escort would have been much stronger. Kittyhawks on dawn patrol ran into the party and shot down eight Stukas, probably destroying four more. The remaining three fled with the Messerschmitts. As they approached Gambut to land, they found a squadron of Warhawks sitting over it which promptly shot down the remaining three Stukas. Not one German bomber got home from the first bombing raid. The Kittyhawks and Warhawks then came home to breakfast.

Encouraged by such a good start, they continued to shoot down enemy aircraft all day. By lunch-time they had shot down a further six Ju.52 transport aircraft, four Me.109s, a Ju.88 and a Fieseler Storch—a total for the day of 23 enemy aircraft certainly destroyed. After lunch the Luftwaffe gave it up and moved hastily back from Gambut. For the rest of the day our fighters strafed the packed coast road between Bardia and Tobruk.

Next day the advanced ground-parties of the squadrons, in a great convoy protected by armoured cars, swept across the frontier wire at Sheferzen into Libya again. As they came through, the trucks drew up, the drivers jumped out and cheered. A Hurricane flew over them and touched down on the landing ground at Sidi Azeiz. Its pilot was Group Captain Guy L. Carter, D.S.O., A.F.C., in command of the fighter force. In that same Hurricane he had been the last pilot to take off from Libya, when we were forced to withdraw the previous June. He had sworn then to be first in, with the same aircraft, when we advanced. He had to race one of his own squadrons to do it.

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14—Graveyard of the Giants

THE SQUADRONS found Libya much as they had left it, except that there were a lot more shattered enemy aircraft on the airfields and except that Tobruk, already battered, was now a shell. The enemy yielded that fortress without a fight. There was no fight left for him. He could only run.

Kittyhawks that reached the place found the tail-end of his forces hurrying out of the harbour in barges, at least one of which they sank. But Gambut was the same. Nothing in this world will ever change Gambut. The dust lay as thick as ever, the tracks as deeply rutted. The three airfields on the point at Gazala were just the same when they reached them on November 15th. Those on top of the hills at Martuba were just as muddy the following day. Derna on the other hand was rather different, for the landing ground was so criss-crossed with mines as to be unusable for many days to come. Still, the Martubas sufficed, together with the Gazalas, for a highly important task which now had to be done. The siege of Malta had to be lifted.

On November 16th a convoy sailed from Alexandria carrying to Malta those very necessities which had been lacking, and impossible of delivery, while the enemy held Libya. It sailed under a fighter umbrella which was raised from every newly-won airfield along the whole coast as far as the area of Derna. It reached Malta almost without incident and without the loss of a ship. Air power took it there. It was so easy—once we held the right airfields.

That was only the first of many convoys to sail for Malta. Speedily the whole island was restocked. At once that invaluable island struck back with greater vigour than ever at the enemy to the north and to the south. As Rommel was driven westwards, his sea supply-routes travelled ever westwards ahead of him. By the night of November 13th/14th the Wellingtons were already in range of Benghazi and the "mail run" had started all over again. Very shortly the only entry port was Tripoli. The vantage point from which to strike it was then, not the mainland of Africa, but the island of Malta. Gradually, as the advance went to the west, more and more bombers, torpedo carriers and long-range fighters were transferred to the island of Malta. Already when the first convoy steamed into Valetta they were at work.

Here the air power of the Middle East began to link up with wider operations which are outside the scope of this story: but something must be said of them, if only to show one theatre of war merging into another. Under the threat of the Allied armies marching through Algeria, the Germans had thrown a swift bridgehead into Tunisia, using mainly the big airfield of El Aouina outside Tunis. On November 10th this airfield was attacked for the first time by Beaufighters from Malta. They made landfall just before dusk some 30 miles to the south, flying the rest at "nought feet" over land, skimming over trees, houses and cafés.

"The people did not seem to have any fear of us," said Squadron Leader A. Watson, D.S.O., D.F.C., who led the formation; "there were plenty of lights showing and people sitting outside the cafés having drinks. Some of them did not even leave their chairs on the pavements but just steadied their drinks on the nearest table and stared up at us. When we got to El Aouina there must have been about 120 aircraft standing on the airfield, dispersed as best they could, but not much room for it. What a party ! All of us got several of the aircraft on the ground. As I myself flew across I saw an enormous aircraft standing there—we found out afterwards it was one of the Merseburg 6-engine gliders. I was so fascinated by this damned big aircraft that I almost forgot to pull up over it in time. Then we had a quick look at the fires we had started and came home." In all they certainly destroyed 20 aircraft, including the Merseburg glider, damaging half a dozen more.

But that was only the start. From then onwards a revivified Malta turned to a fury of assault. El Aouina was raided by night and by day, its hangars knocked into twisted caricatures, its aircraft and workshops fired time after time. Farther to the east the Malta bombers attacked

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They left the Luftwaffe behind them. On the landing grounds at Sollum, at Gambut, at Martuba, Derna, Benina, Magrun, Agedabia, El Agheila and through Tripoli to Castel Benito, lay the remains of a scattered and broken air force, abandoned in the haste and disorder of the retreat. This photograph was taken at Derna.

Tripoli, to the north they ranged over the airfields and ports of Sicily and southern Italy.

Beaufighters from Malta were particularly active in intercepting the air supply-route, which was attempting to pump at least a little petrol to Rommel or to carry in a few reinforcements. Seven of them, for instance, on November 12th found six S.82s, big Italian transport aircraft, crowded with troops. The Italians fled towards their fortified island of Pantellaria, while the Beaufighters picked them off one by one. The last fell into the sea in flames just short of the island. Very soon the Beaufighters were shooting down troop and petrol carriers on this route practically every day. Once they destroyed what was believed to be the biggest aircraft yet shot down in the war, a B.V.222 flying-boat with six engines, which at first glance the Beaufighter pilot

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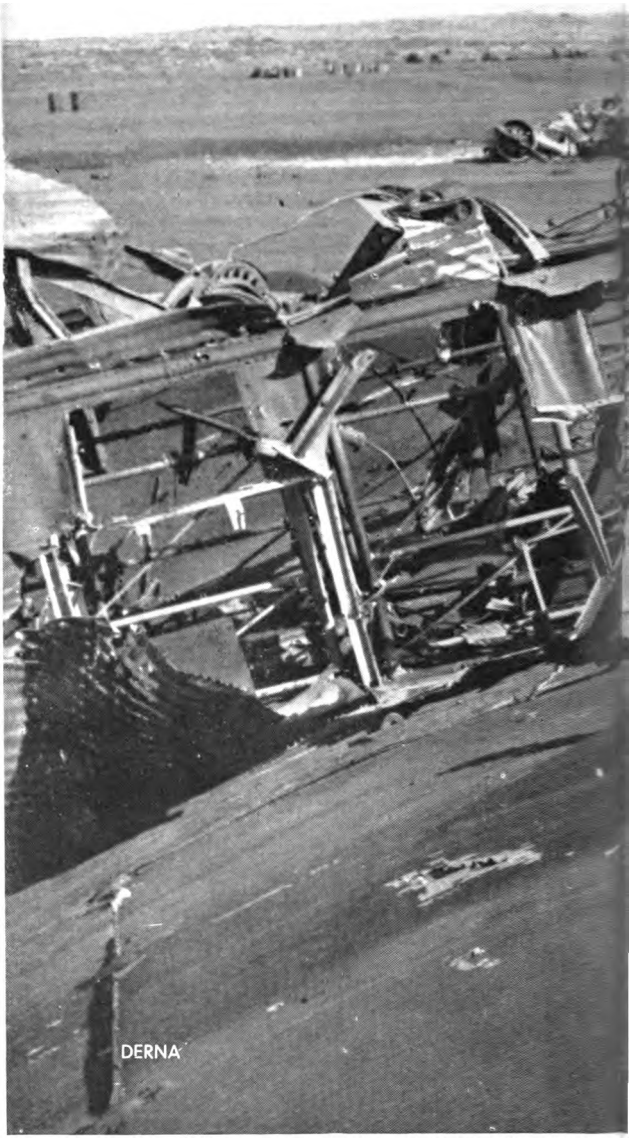
BENINA

ast battle of supplies. With the doors from the sea closed to Rommel sought to bring his vital supplies in the giant Ju. 52s. were shot down into the sea and on the land, and Kittyhawks over the airfields day after day. When the Army came up found Rommel's supply service a litter of burnt-out wrecks.

MAGRUN



DERNA

took to be a ship of about 3,000 tons coming over the horizon.

During the month of November alone, the Beaufighters of Malta shot down 37 aircraft, mostly troop carriers, in air combat, and probably destroyed or damaged another 60. On the ground they knocked out or crippled 50 more. One of these squadrons was led by Wing Commander J. K. Buchanan, D.S.O., D.F.C., who was previously a bomber pilot, in which capacity he had taken part in 230 bombing raids over 13 countries. When he went to Malta to take command of a long-range fighter squadron he had flown fighter aircraft for only 10 hours. In his first five fighter sorties he destroyed five enemy aircraft.

These attacks on the air supply-route were so seriously regarded by the enemy that he began to put big fighter umbrellas over his transport aircraft. Malta responded by flying Spitfires on

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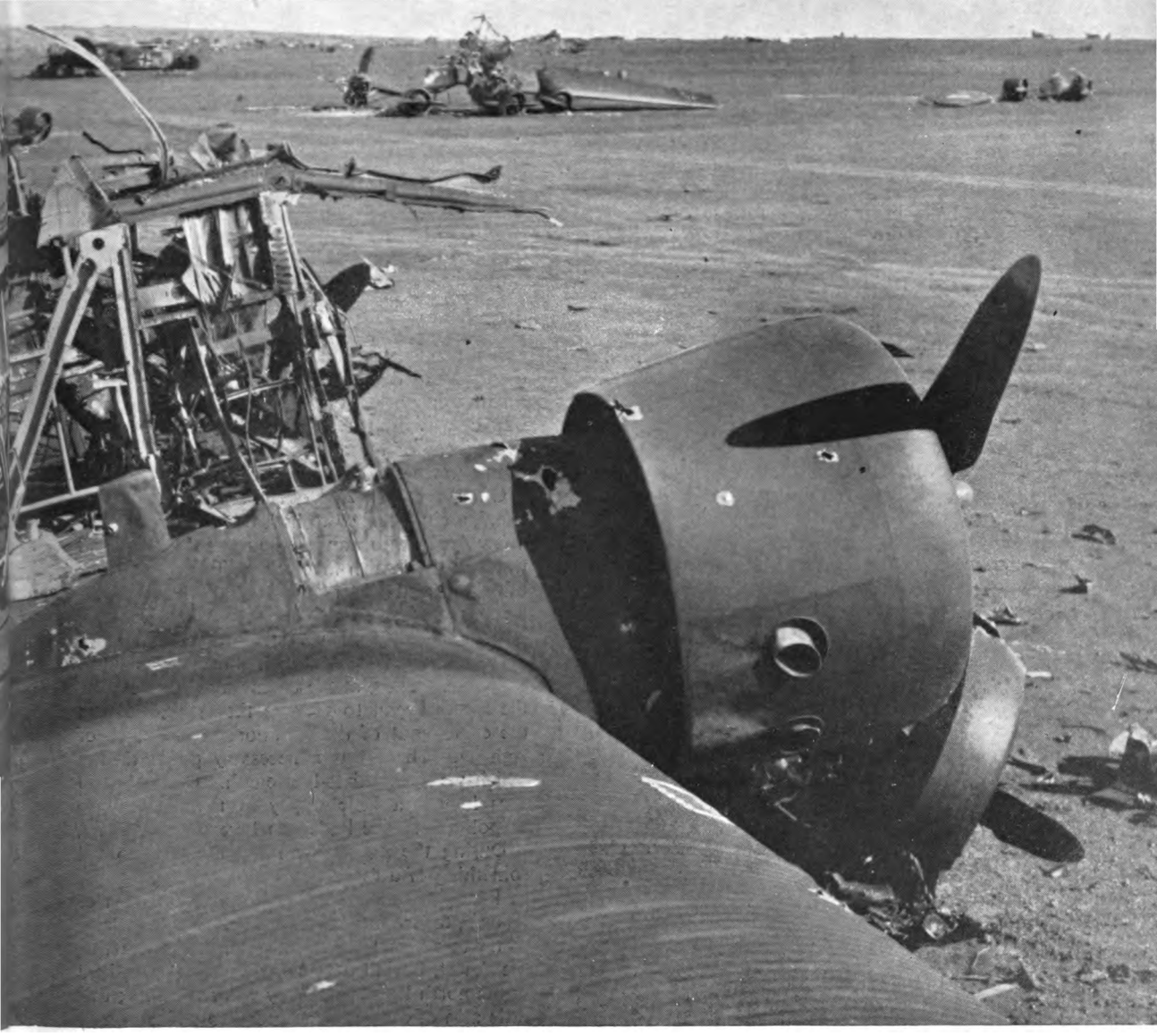

top of the Beaufighters and the result was the same. On December 11th such a formation met 32 Ju.52s, escorted by four twin-engine Me.110s and a Ju.88. The transport aircraft were flying only about 100 feet above the sea, south of Lampedusa island, with their escort some 500 feet above them. The Spitfires went for the escort, shooting it all down. Three of the Messerschmitts fell into the sea in swift balls of flame, the fourth floated on like a parachute flare and then dropped. The Ju.88 spun into the sea. Then the Spitfire leader was heard calling over his radio, "Let's go for the big stuff." They dived on the Ju.52s, and shot down two of them; the Beaufighters came in afterwards and shot down six more.

Back on the African mainland the Wellingtons by night and the American Liberators by dusk were taking their last opportunity to pound Benghazi before it fell into our hands. They hit

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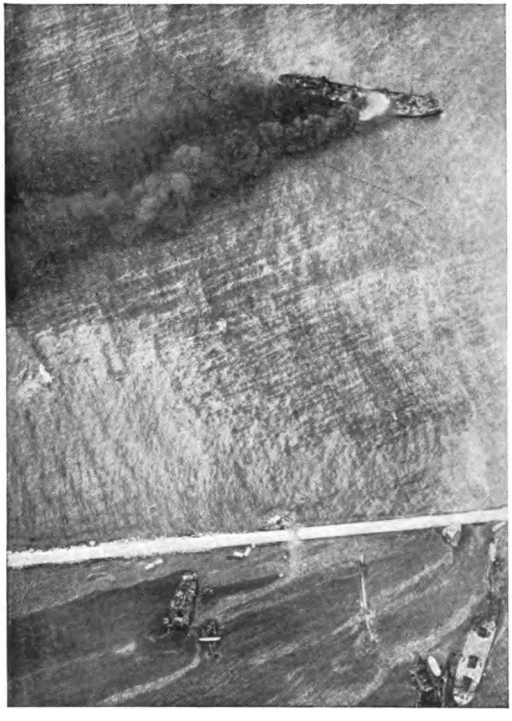
hard. One tanker which lay near the entrance to the harbour was split into two parts, both on fire. She burnt for many days after the 8th Army had reached Benghazi, a crackling of flames on the waterline, a tall pillar of smoke by day, a glow by night. When she had at last burnt herself out it was as though a familiar landmark had been removed.

In the desert the squadrons were still pushing forward. The fighters were concentrating towards the end of November on the petrol war. Forbidden entrance by sea, the Germans were striving to bring at least a little petrol into Cyrenaica by air in order to pull what tanks and trucks remained to them round the corner at Agheila. The two airfields which they chose as the southern termini were the big station at Benina just outside Benghazi and a flat desert landing ground at Magrun some 50 miles farther south down the coast road.



Benghazi, bombed to hell and deserted, was entered on November 21st. The R.A.F. watched a tanker, fired in a raid on November 6th, burn herself out. Harry, Johnny and the rest lay where they had put them, derelict.

Reconnaissance photographs showed more and more big transport aircraft using these airfields, so the Kittyhawks hung over them day after day. They made some good hauls. On November 17th, they found 13 Ju.52s and He.111s at Benina, shooting down six of them from the air and destroying all the rest on the ground. One Junkers was shot down on to a Benina hangar, setting the whole thing ablaze. Next day the Kittyhawks around Benina and Magrun shot down eight more Ju.52s in air combat, and destroyed or damaged 27 more aircraft, most of them transports, on the ground. Magrun, indeed, was the graveyard of the giants. Burnt-out wrecks of big aircraft which had obviously been carrying petrol littered the whole place.

On November 21st our forces entered Benghazi, a city bombed to hell, deserted by all save a few Arabs who wandered among the ruins and watched the British take over. The desert force of fighters and fighter-bombers had moved south-west across the desert on the old route, Msus, Antelat, Agedabia, Hasseiat. Some of the landing grounds were flooded, but others were available. Thus, at the beginning of December, the forces began to prepare themselves to turn the enemy out of the traditional stronghold of Agheila. There was a necessary pause during which we accumulated strength. One or two eyes looked a little warily at the gateway to Tripolitania. We had been here before—twice.

During the pause is an apt moment to tell something of a formation of desert fighters that had fought a most successful little campaign of its own, far from the main battle. It was carried by air to a secret landing ground in the heart of the desert, behind the enemy lines. Somewhere in the north Rommel's army was retreating; this little arm of air power intended to strike him in the face as he ran. By dawn next day Hurricanes appeared far behind the front lines, strafing the roads, then wheeling back south into the desert to be lost in its immensity. While the Germans were still on the eastern borders of Cyrenaica, these Hurricanes were close enough to strike at their road columns on the western border, around Agheila itself.

They were also beautifully placed to cut off a somewhat contemptible force of the Italian army. When the Germans advanced during the summer as far as Alamein, our small forces that had occupied the oasis of Siwa had been compelled to withdraw to avoid being cut off. Siwa

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was then occupied, to a great flourish on the Rome radio, but without any fighting at all, by a detachment of the Fascisti Youth, a party organisation of young blackshirts.

They remained at Siwa throughout the summer, constantly lauded by propaganda for the courage with which they supported life in this very pleasant oasis. When the Axis was thrown back from Alamein they were too far away for the Germans to confiscate their transport, so they hastily packed up and drove off to the east. That was where the Hurricanes caught them. They found them in the open desert and flew out to strafe them time and again, until not a lorry would run, and until it was doubtful whether a single young blackshirt would ever again reach safety.

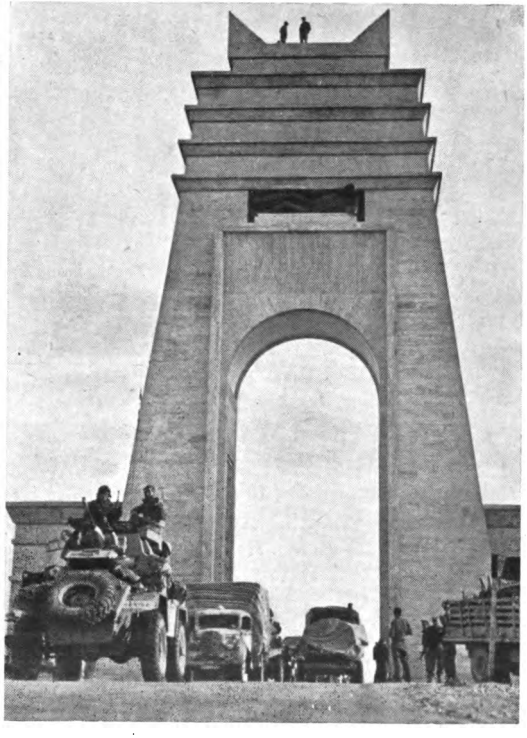
Then they turned back on to the German columns on the Agheila road. By the time the enemy had been driven out of Cyrenaica altogether, this small detachment of Hurricanes working from the heart of the desert had destroyed 130 enemy vehicles and damaged a further 171.

15—"It isn't desert any more"

EARLY IN DECEMBER the war in the desert seemed almost static. The attention of the world was directed towards the mighty strides made by the Russians, and to the fortunes of the Allied forces attacking Tunisia from the west. But on December 13th the desert was suddenly news again; the desert forces were on the move. Although he had not been seriously attacked, Rommel was pulling out of the stronghold of Agheila, retreating towards Marble Arch, the big desert landing ground on the coast marked by a great Italian triumphal arch across the road.

In a few hours the British would be round the Agheila corner, that obstacle of two years; in a few hours they would be in Tripolitania for the first time; it began to look as though in a few weeks the last province of her African empire would be lost to Italy.

It was a day of crisis in the land war, so the desert air forces responded in their traditional way. They set up a new record of fighter-bomber sorties. Every aircraft that could fly was turned on to the retreating enemy columns between Agheila and Marble Arch. In the very first attack petrol bowsers were set on fire, and here and there the road was blocked by burning transport. Before breakfast the scene was dotted with thin columns of smoke rising straight into the sky. Contemptuous of interference by the Luftwaffe, which was quite strongly established on Marble Arch landing ground itself, the



Marble Arch, gateway to Tripoli. Harried by fighter-bombers and night-flying Hurricanes, the enemy left the airfield on December 15th. By December 18th, the R.A.F. were installed and operating—their first entirely airborne move of a complete wing.

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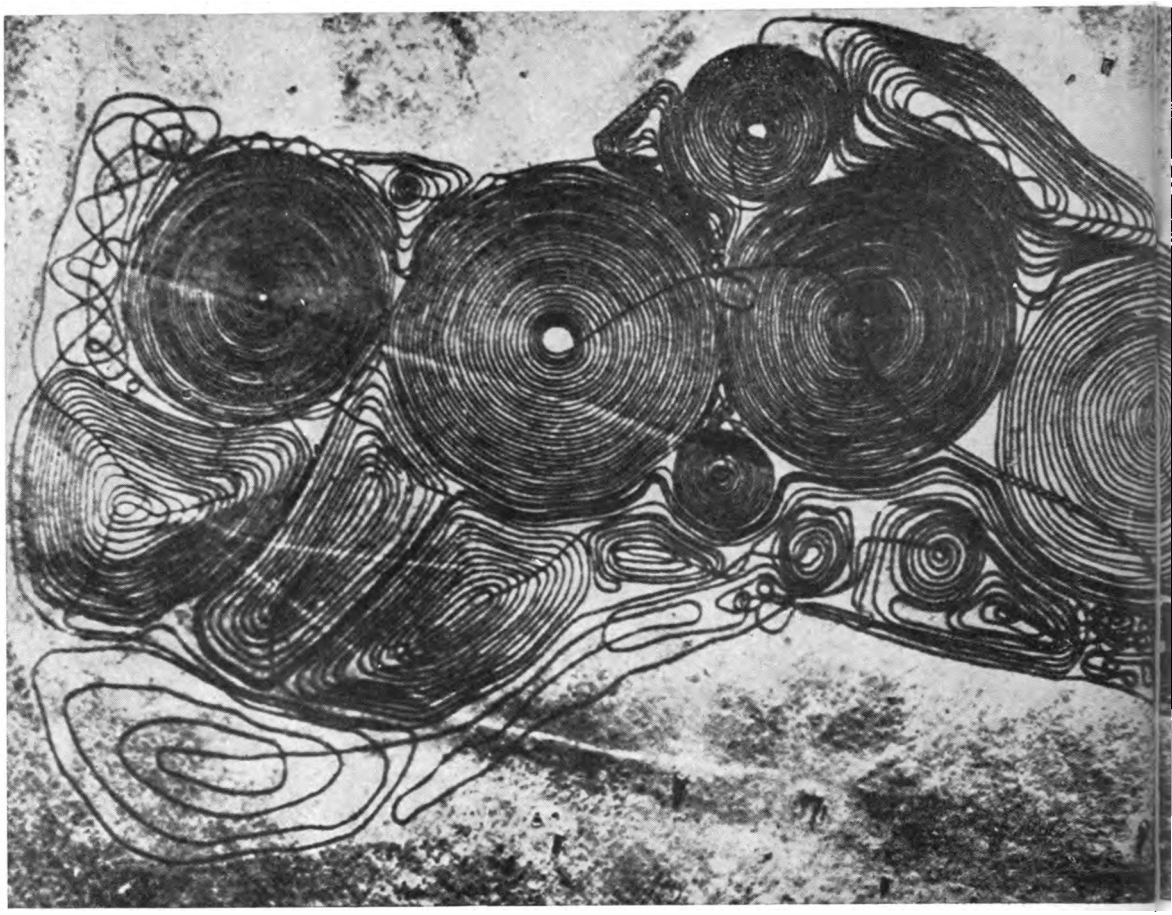

Kittyhawks shot down six of the few Messerschmitts which took off to intervene. All day long, Spitfires swept up and down the road, their guns firing from the height of the telegraph wires.

That night Hurricanes trained in night flying took over. The pilots flew as many as three sorties in each aircraft every night thereafter, coming back twice to base to refuel, rearm and take off again. Next day, by a stern effort of supply, some of the light bombers were brought into range to add their weight to the attack round Marble Arch. It was enough; the enemy did not stay. By December 16th, the bombing targets had retreated as far west as Nofilia.

The rearguard had not escaped from Marble Arch unscathed. During the preceding days a considerable force of the 8th Army had made a wide detour south and west through extremely difficult desert, striking back north at the road to trap some of Rommel's men. With that force went a small party of ground staff of the R.A.F. Together with the Royal Engineers they worked laboriously at Marble Arch, clearing of mines enough space to enable the aircraft to land and enough round the edges for some sort of dispersal. Then they signalled to the squadrons to come on.

That was the point at which the desert air forces carried out their first entirely airborne move of a complete wing. The whole equipment

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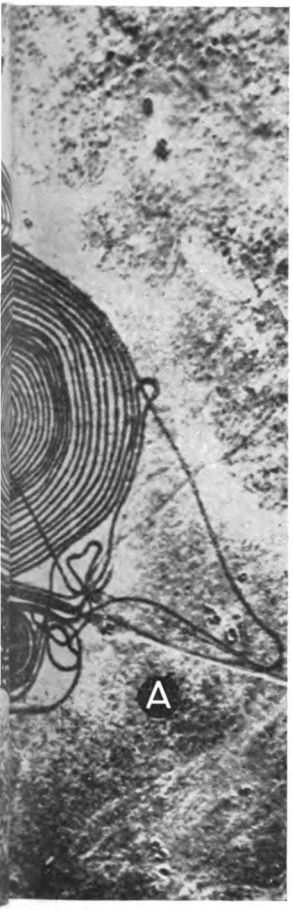

"**The enemy tried every sort of dodge** to slow up the fighter squadrons which bombed and strafed him by day and by night. Hundreds of thousands of land mines were scattered on and around the landing grounds. Men took ploughs and ploughed the airfield surfaces into the most fantastic patterns." The laborious design of this photograph was cut into the red soil by three tractor-drawn ploughs, all starting from A. Half-way through, the large circles and three smaller circles completed, they broke off for lunch. . . .

It availed him not at all; the R.A.F. simply made new airfields. Every man of all ranks got down to it. They cut out the scrub to burn it, they shifted the boulders, they dug out the soft patches and filled them with hard core. In a day and a half the job was done.

and personnel of one fighter-bomber wing were loaded into a fleet of transport aircraft at dawn on December 18th. The fighter-bombers themselves flew alongside the transports carrying their bombs, petrol, ground staff and gear. They all touched down on Marble Arch.

Everybody then set to work to off-load and to prepare the fighter-bombers for combat. Pilots helped carry their own bombs and fix them on the aircraft. In less than two hours the first squadrons had taken off to bomb the enemy on the road to Sirte. They were taken completely by surprise. It had been thought, doubtless, that Marble Arch was so mined as to prevent its use for a week or more. In fact the fighter-bombers were using it less than 48 hours after the last German drove away. That sudden move enabled them to bomb as far to the west as Buerat-el-Hsun.

That was the pattern and the speed of the rest of this great advance of the squadrons. It was in a sense a race, not to get to Tripoli, but to get sufficiently far forward on the ground to be able to strike the German columns from the air no matter how fast they ran. The enemy tried every sort of dodge to slow up these fighter squadrons which bombed and strafed him by day and by night. Hundreds of thousands of land mines were scattered on and around the landing grounds. Men took ploughs and ploughed the airfield surfaces into the most fantastic patterns,

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so that they looked from the air like surrealist etchings or balls of tangled wool.

They succeeded, indeed, in making the existing landing grounds unfit for immediate use, but not in stopping the R.A.F., which simply made new airfields. All the time ground parties pushed ahead in small convoys led by the R.A.F. armoured cars, tracking over the desert by compass bearing to choose flat and likely places for new landing grounds.

A party arrived at one such selected place late on Christmas Eve. It was a wide, featureless stretch of desert, some of it soft sand, covered here with patches of scrub, littered there with boulders. Work started at dawn on Christmas Day, every man of all ranks taking off his tunic and getting down to it with a shovel. They cut out the scrub to burn it, they shifted the boulders, they dug out the soft patches and filled them with hard core. Lorries in line abreast were driven across the site to help flatten it. Loose boards were hitched behind the lorries like sleds and dragged over the bumpy places with a few men sitting on them to increase the weight of the "roller." They had no Christmas dinner, but just bully brought out to them as they worked. By the afternoon of Boxing Day the job was done. A new landing ground stood in the desert to await the squadrons. As the first aircraft came in to land, soon afterwards to take off again and bomb the enemy, one of the aircrafthands was heard to remark that it was the most satisfactory Christmas he had ever spent.

It was similar work by the ground parties that finally put the squadrons within range of Tripoli itself. Once again the existing landing grounds had been mined round the edges and ploughed in the centre. But the squadrons did catch one ploughing party at work on Castel Benito airfield near Tripoli. After the party was over, they sang a new jingle to an old tune that night:

"Six men came to plough, to plough Castel Benito,
Six men, five men, four men, three men, two men, one man, no men with no plough,
Work now finito."

However, the airfields could not be used, and new ones had to be created. The ground party travelled forward through the night, reaching the agreed sites before breakfast. The squadron leader in command sent back a message that he would have a landing ground ready for the squadrons in three hours' time. He kept his promise. By nightfall the ground party had created a second airfield a few miles away. They worked all night and by the following dawn they had created a third. The Luftwaffe was welcome to plough up and mine its airfields as it fled; the engineers and the R.A.F. in the desert created new airfields from nothing at the rate of three in 24 hours.

Airfields in themselves are not everything, however. There is still the need for supplies. That problem was tackled by the fleet of transport aircraft of the R.A.F., the U.S.A.A.F., and the British Overseas Airways Corporation. Almost all the big and suitable aircraft in Africa were brought into the organisation, which played a vital part in the advance, not only of air but also of ground parties. From the start at Alamein the transports flew forward petrol, water, bombs, ammunition and a variety of other stores. One pilot worked out, from what figures is a little uncertain, that the water he was drinking on a landing ground in Tripolitania was costing 10d. a glass to reach him—more than beer; thereafter he drank the stuff with greater reverence. Without the air-transport organisation there would have been no water at all. Without it, in fact, the advance would have been impossible.

It would have been much more difficult, too, without the work of aircraft over the Mediterranean blasting continually at the enemy supply lines. Night after night the Wellingtons bombed the ports of Sicily, southern Italy, Tripoli, Tunisia. The torpedo Wellingtons and the naval Albacores were still roaming the night sky over the sea, searching out the enemy supply-ships and sinking them in sheets of flame. The strength of these attacks on the supply lines was increased as Rommel's need became the more desperate. In the seven weeks from November 1st, at least 45 ships were sunk or very severely damaged by bomb or air torpedo. Nearly half of that total was hit at sea; the rest in port at one end or other of the supply route.

* * * *

At 5 o'clock on the morning of January 23rd, 1943, just three months to a day since the 8th Army joined battle at Alamein, the first British troops entered Tripoli. At the same time the advance parties of the squadrons took over

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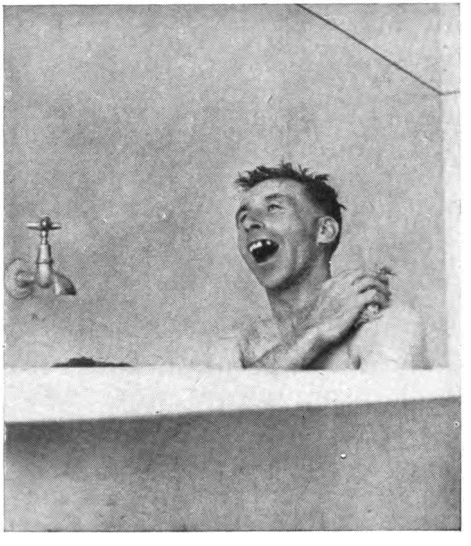
Castel Benito airfield outside the city. The first officer to arrive duly signed his name in the Italian visitors' book in the watch tower. The Italian Empire was ended.

Through an advance of 1,400 miles over the desert, carrying every necessity of life and war with them, the squadrons never once fell out of range of the front line. Over a distance roughly equal to that between Moscow and Berlin they struck the enemy every day and every night. A squadron of aircraft, with all the cumbersome paraphernalia of petrol, bombs, machinery, signals, does not move as easily as a squadron of tanks or armoured cars; but the desert squadrons never once fell behind, nor out of mechanical efficiency. The aircraft flew as well on the last day as the first. The trucks rattled and squeaked, but they still ran. The men, clothes and bodies alike, were stained with the desert dust, but of a grand spirit.

They made Tripoli. It has been called the greatest single advance in military history. It ensured that, in any foreseeable circumstances, the Western Desert war was at last ended. The headquarters of the desert fighter force set up its tents outside Tripoli in an orchard. "Heaven knows what grows in the orchard," said one of the officers, "but it's green, it's an orchard—it isn't desert any more."

What lay ahead of them the squadrons did not know. Great things obviously, for already Mr. Winston Churchill and President Franklin Roosevelt had met at Casablanca. Across the Mediterranean stretched already that air power of the Middle East, already proven, coiling for greater blows with greater strength. All that lay in the future. For the present the squadrons knew only that the Western Desert war was ended. There was some more desert to be crossed, it is true, as they proceeded west into Tunisia, but for the moment they lived in an oasis; that great expanse of the Western Desert in which they had fought for so long lay behind, the country of green mountains ahead. Yet perhaps one or two eyes turned a little regretfully back to the barren territories, one or two pictures presented themselves—a dispersal of tents, the almost warm brightness of the moon, the sound of a violin humming across the sand, men's voices singing; the reminiscent flavour of bully-beef and hot tea, and at dawn the sudden roar of engines warming up, the kicked-back wakes of sand from spinning airscrews, the lift and climb into the desert air.



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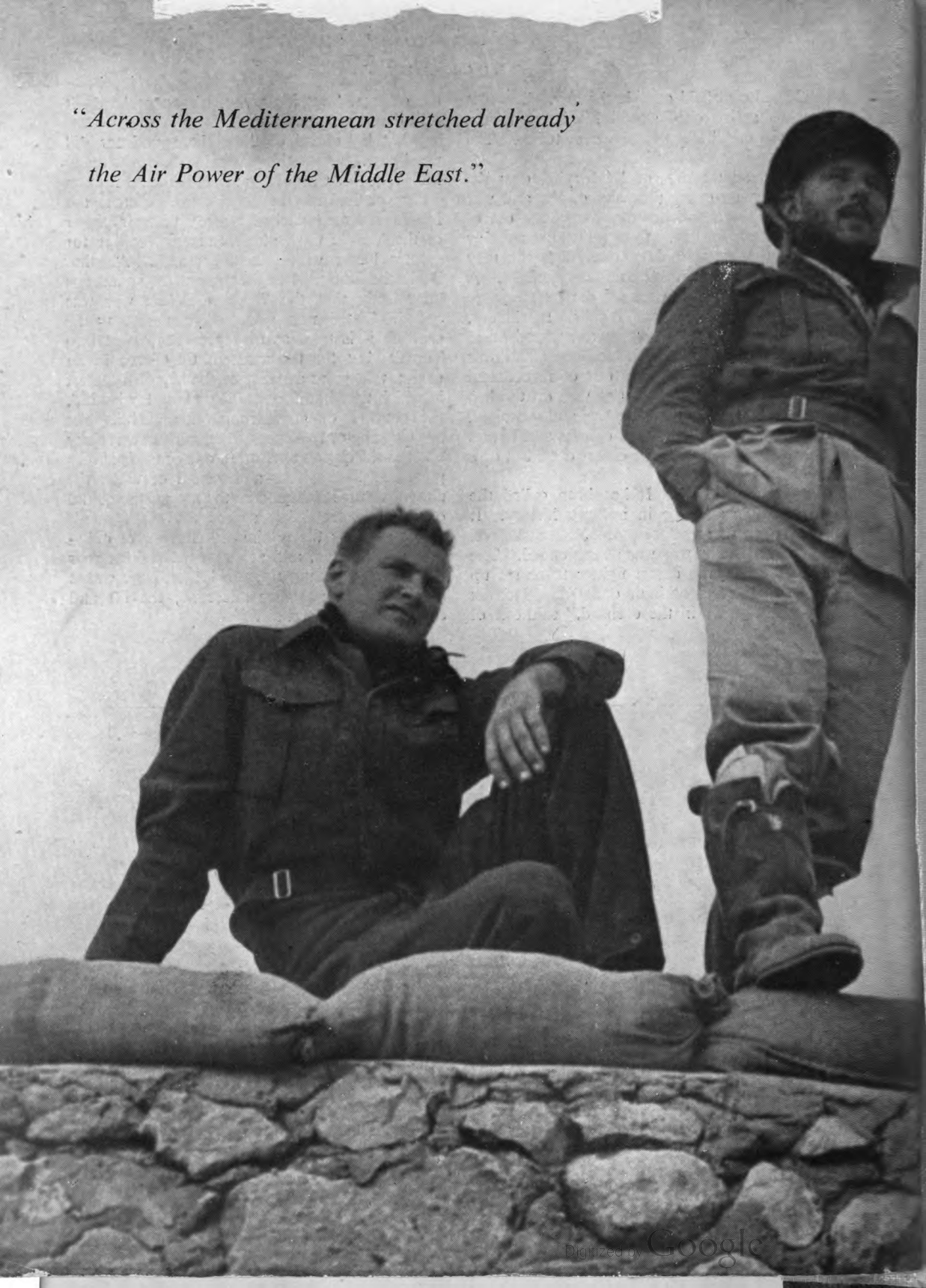
"Across the Mediterranean stretched already the Air Power of the Middle East."



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